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FROM THE EDITOR | JOHN DIX

Dell has its work cut out for it

Taking Dell private is a bold move, but won't ensure success. If you can't recognize opportunities and execute properly as a public company, buying yourself shelter from investors only takes you so far. The bigger challenge will be rejiggering the corporate culture and core processes to make more innovation possible.

Why take this \$24 billion gamble, which saddles the company with \$15 billion in new debt?

Stagnated sales could be one reason. Since fiscal 2008 revenue has flatlined: \$61.1b, \$61.1b, \$52.9b, \$61.5b and \$62b. The company's fiscal 2013 ends later this month and analysts expect sales to dip to \$56.7b.

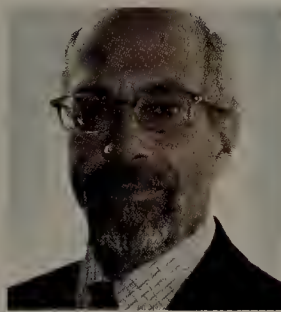
But the last five years have been hard on many computer shops. IBM's 2012 sales of \$104.5b, for example, were just a hair above the 2008 mark. The intervening years saw a high of \$107b and a low of \$96b. HP fared better in that period, using acquisitions to grow top line sales, but the fruits of that labor have left it with a confused strategy and a loss of \$12b in 2012.

To reignite growth Dell has been trying to diversify its products and services, an effort it kicked off a few years ago to become an "end-to-end technology solutions company."

While Dell has managed to reduce its dependency on the cutthroat PC business, "Desktops & Mobility" still accounted for a whopping 54% of sales in the first nine months of FY13 (ended Nov. 2). The good news: Revenue for servers and networking grew 9% in this period, driven by the acquisitions of Force 10 Networks, SonicWall and other recent additions.

The question is whether Dell can scale these other core sectors fast enough. Revenue for "Mobility" (notebooks, mobile workstations and tablets) fell 18% for the first nine months of FY13 (mostly due to lower unit sales), and "Desktop" revenue was off 6% for the period (mostly from falling prices). By way of comparison, Apple racked up more in iPad sales last quarter than Dell mustered in Desktop sales over the first three quarters of FY13 — \$10.6b in iPads vs. Dell's \$9.8b worth of PCs.

Add it up, and it looks like the company has its work cut out for it. No wonder Michael Dell wants to make the sausage without shareholders looking over his shoulder. The question is, can Dell muster enough cultural and process change to capitalize on the newfound freedom?



John A. Dix

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Time to re-evaluate VMware

➔ **VMWARE STILL HAS** an edge where bigger deployments are concerned in my view (or in any deployment where avoiding spinning discs to the greatest extent is a priority). Being able to install the vSphere hypervisor to something as simple as an internal SD card is great (Re: "Tough times at VMware" page 10).

As for stability, well, a cleaned-out Linux core installation is something I for one would rely on far more happily than a Windows core. We may have no choice on running Windows in the VMs, but keeping that stuff off the hypervisor layer is a win in my book.

crOfi

➔ **THE AUTHOR FORGOT** to mention the vSphere 5.1 fiasco. VMware had to release two bug fix releases within a matter of weeks of the GA release. It was riddled with install problems, poor security, and a brand-new service (SSO) that clearly didn't go through any beta testing. Because of the major flop of vSphere 5.1, I know people that are completely skipping that release and also looking at Hyper-V. VMware really hurt itself by shipping a product way before it was fully baked.

SomeOne

BlackBerry 10 will turn the tables

➔ **I DISAGREE WITH** the assessment that users who want physical keyboards are diminishing. Our company only has 60 or so BB users, and nearly all of them say the physical keyboard is the one feature that they would miss on the iPhone (Re: "The BlackBerry 10 announcement — has anything changed?" tinyurl.com/a5k6cac).

As far as the "too little too late" argument, well, seven years ago Apple and others wanting to be competitive in the smartphone market didn't ditch their plans because RIM was the standard for a corporate smartphone, they simply focused on the consumer side. It would seem to me that the position has simply reversed — BlackBerry is in a good position to gain users while the others catch up.

terryweaver

Jailbreaking vs. unlocking

➔ **THE ISSUE ISN'T** jailbreaking, it's unlocking. And that has nothing to do with Apple — that's all due to the telco industry in this country wanting a lock on their customers (Re: "Jailed for jailbreaking: The new law could land you in the slammer"; tinyurl.com/au7lfdb).

If I buy a phone and keep paying my bill, I should be perfectly free to unlock my phone, even during the term of my contract. After all, the contracts already have monetary penalties built in should I terminate my contract before the term is up.

Now I cannot even unlock my own phone while still otherwise complying with the terms of the contract! It's the telcos that are to blame for this, not Apple, not Samsung, and not BlackBerry.

compudude

Lotus products greatly missed

➔ **LOTUS HAD REALLY** great products that IBM just killed. And those decisions were made from the inside out. IBM said to its internal public that Notes would be replaced by WebSphere. Well, it was the death sentence for Domino/Notes (Re: "Remembering Lotus as IBM kills off name"; page 16).

Another memory: Lotus Approach is the best analyzing software (for users and not programmers) I had ever seen. It is dead, too.

Ricardo Zerwes

What motivated Dell investment?

➔ **IT IS DOUBTFUL** that Microsoft is seeking "protection" from Linux with its Dell loan or investment as opposed to more of a "hedge" in

thwarting further Linux adoption (Re: "Microsoft may be seeking protection from Linux with Dell loan"; tinyurl.com/aym6wlf).

Most technology professionals in a Fortune 50 firm with whom I have discussed this matter see it as a continuum of Microsoft placing large obstacles in the path of Linux server growth that has exploded in recent years, thanks to cloud computing, social networking infrastructure expansion, and research via supercomputers.

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Dell goes private, creates uncertain future

MICHAEL DELL HAS teamed up with investment firm Silver Lake to buy computer maker Dell, the company he founded as a 19-year-old in 1984, in a deal valued at about \$24.4 billion. The deal includes a \$2 billion loan from Microsoft, which said it views the deal as a commitment to the "long term success of the entire PC ecosystem." Others weren't so excited: Dell is in the midst of a wrenching transition from a supplier of commodity hardware, mainly traditional PCs, to being a supplier of enterprise-grade IT infrastructure. Dell's ambition is nothing less than offering the entire IT stack with supporting services. The implication of going private is that Dell is planning radical changes to its strategy and product road map. While the company might come out of this transition stronger with a product lineup that better meets the needs of businesses and public sector organizations, there will be uncertainty as to what products and services stay, according to Carter Lusher, chief IT analyst at Ovum. tinyurl.com/au4f5xb



Patches on way for new SSL attacks

THE DEVELOPERS of many SSL libraries are releasing patches for a vulnerability that could potentially be exploited to recover plaintext information, such as browser authentication cookies, from encrypted communications. The patching effort follows the discovery of new ways to attack SSL, TLS and DTLS implementations that use cipher-block-chaining mode encryption. The attacks apply to all TLS and DTLS implementations that are compliant with TLS 1.1 or 1.2, or with DTLS 1.0 or 1.2 [the most recent versions of the two specifications]. They also apply to implementations of SSL 3.0 and TLS 1.0 that incorporate countermeasures to previous padding oracle attacks. Variant attacks may also apply to non-compliant implementations. The problems is that end users could theoretically be vulnerable to hackers when they visit HTTPS websites that haven't applied the patches. However, security experts say the vulnerability is very hard to exploit, so there may be little cause for alarm. tinyurl.com/b8s9jt3

IT VIDEO

Up close with the Surface Pro

The latest Microsoft tablet with full Windows 8 functionality went on sale last weekend – check out this video report on the new device from CIO.com's Shane O'Neill tinyurl.com/b4249tg

Big Blue brings big smarts to servers

IBM'S NEW Power Express servers announced last week will integrate some hardware and software elements derived from Watson. The Power Express 710, 720, 730 and 740 servers start at \$5,947. With Watson technologies, companies can use the new servers to analyze warehouses of data, and to answer complex queries with high levels of confidence. The technologies will provide insights into structured and unstructured data at a less expensive cost, IBM said. In addition by keeping the price of the servers down, IBM hopes to

Microsoft, Symantec bash vast botnet

MICROSOFT AND Symantec said last week they had taken out a botnet that took over millions of computers for criminal activities such as identity theft and click fraud. The Bamital botnet threatened the \$12.7 billion online advertising industry

by generating fraudulent clicks on Internet ads, which fund many of the free online services available to consumers, the companies said. Bamital infected as many as 8 million computers over the past two years. It's the sixth botnet Microsoft has shut down in the past three years, and the second done in cooperation with Symantec. tinyurl.com/a5p9ju9



take on rivals like HP and Dell, which sell tons of commodity servers based on x86 chips. tinyurl.com/a6sak8p



FTC's challenge nets 744 new ways to cut robocallers off

THE FEDERAL Trade Commission last week said the submission period for its Robocall Challenge had ended and it got 744 new ideas for ways to shut down the annoying automated callers. The FTC noted that the vast majority of telephone calls that deliver a prerecorded message trying to sell something to the recipient are illegal. The FTC regulates these calls under the Telemarketing Sales Rule and the Challenge was issued to develop ways to block illegal robocalls which despite the agency's best efforts seem to be increasing. The FTC Robocall Challenge is now in the hands of the judges which include Steve Bellovin, FTC chief technologist; Henning Schulzrinne, Federal Communications Commission chief technologist; and Kara Swisher of All Things Digital. The FTC expects to announce winners in April. tinyurl.com/a6223j3

FBI takes out cyber-fraud scam

THE FBI last week said it broke up what it called one of the

largest credit card, cyber-fraud schemes in its history – a \$200 million scam that created more than 7,000 false identities and tens of thousands of fake credit cards. The FBI said it arrested 13 people involved in the scam which maintained more than 1,800 “drop addresses,” located across the country including houses, apartments, and post office boxes, which they used as the mailing addresses of the false identities. According to the FBI, the defendants then created dozens of sham companies that did little or no legitimate business, obtained credit card terminals for the companies, and then ran up charges on the fraud cards. tinyurl.com/bek5k9s

Trojan infects smartphone to launch attack on PC

KASPERSKY LAB said it has discovered the first ever Android malware app that appears to have been designed not to attack the host smartphone but any PCs it is subsequently connected to. Discovered on Google Play, targeting Russian-speakers disguised as a memory-killer utility, innocent downloaders will end up with three malware files on any SD card plugged into their smartphones. Any PC that connects to the phone while in USB emulation mode (which treats attached smartphone drives as external disks) and old enough not to disallow Windows Auto-run, will be hit with Backdoor.MSIL.Ssucl.a. The malware takes control of the smartphone. Google has removed the two apps associated with the attack from Play but not before several thousand users downloaded it. tinyurl.com/berzwdo

9th grader cashes in for ditching Facebook

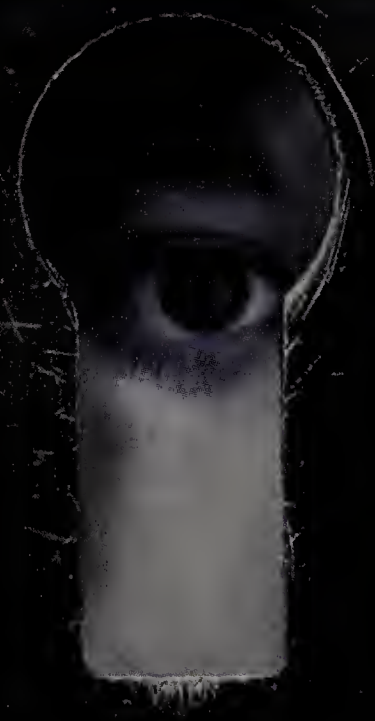
A WELLESLEY, Mass., dad has agreed to pay his 14-year-old daughter \$200 if she ditches her Facebook account, in an effort to extract her from “the 24/7 comparison of experiences and clothes” with other girls online. The Facebook Deactivation Agreement was his freshman daughter’s idea, according to Paul Baier, who adds that he hopes the notion will start a trend among others at the school. Under the contract, the dad agrees to pay his daughter \$50 in April and \$150 in June if she sticks to her word and stays off Facebook for the next five months. He even has access to her password, so that he can kill the account (hmmm, maybe Google will pay her another \$200 to join Google+?).

good

Big Data warning

A RECENT push in the IT industry to collect and monetize big data is headed for a clash with privacy concerns from Internet users and potential regulation from some governments, according to tech analyst firm Ovum. Internet advertising networks and other companies that depend on the collection of personal data online should prepare for a “rebalancing” of the relationship between themselves and Web users, with Web users having more control of their data, said Mark Little, principal analyst at the U.K. tech and business analysis firm. “More and more consumers are deciding to effectively become invisible in data terms on the Internet. It will shake the Internet economy as more and more users decide they don’t want to be tracked.”

bad



Juniper router trouble

A FLAW has cropped up in Juniper’s router operating system that can cause the systems to crash and reboot. Juniper discovered a potential TCP vulnerability that affects certain releases of Junos software during “routine internal product testing,” the company said. A Juniper spokesperson would not make an advisory on it available to *Network World* for publication. But a report in Australia’s iNews.com states that by sending a specially crafted transmission control protocol packet to a listening port on a Juniper Routing Engine, an exploiter can make the kernel in Junos crash, and cause routers to switch over or reboot.

ugly

Cisco vs. Juniper: How different are their SDN strategies?

BY JIM DUFFY

ON THE surface, Cisco's and Juniper's SDN strategies seem to have sharp contrasts if recent announcements are any indication. For example:

- Juniper places much more emphasis on the software angle of SDN, even ushering in a new software licensing business model; Cisco's attempts to make hardware as much, and perhaps even more, relevant than software.
- Cisco is attacking five markets at once — data center, enterprise, service provider, cloud, academia — with its strategy, while Juniper is focusing initially on data centers.
- Juniper views SDN as much more disruptive, potentially allowing it to significantly increase share; Cisco has thus far made no such dramatic market impact statements regarding SDN.
- As part of its hardware focus on SDN, Cisco is funding a separate spin-in company — Insieme Networks — which is believed to be building big programmable switches and controller(s); Juniper has no such hardware investments, but did buy Contrail for \$176 million, again emphasizing the software aspect.
- Cisco has a timeline of 2013 deliverables; Juniper's timeline pushes a controller and SDN service "chaining" capability out into 2014, and the new software business model into 2015.

Yet analysts say the strategies are really more similar than different.

"There are some similarities," says Brad Casemore of IDC. "Both Juniper and Cisco are emphasizing ASICs, and therefore hardware, in their SDN strategies. Both companies also see network and security services — Layer 4-7 — as virtualized applications in a programmable network. They each have controllers, but they also will promote hybrid control planes — decoupled and distributed. Juniper is positioning for a software-licensing business model, true, but it's relatively early along in that process."

"It's a different packaging strategy but both seem equally focused on the value of software in SDN," says Mike Fratto of Current Analysis. "Key points being modular, flexible, and exposing APIs for integration."

Juniper recently divulged its SDN strategy after months of silence — seven months after Cisco ONE was announced. Salient points of Juniper's plan include separating networking software into four planes — Management, Services, Control and Forwarding — to optimize each plane within the network; creating network and security service virtual machines by extracting service software from hardware and housing it on x86 servers; using a centralized controller that enables service chaining in software, or the ability to connect services across devices according to business need; and the new software-based licensing model, which allows the transfer of software licenses between Juniper devices and industry-standard x86 servers, and is designed to allow customers to scale purchases based on actual usage.

Cisco's ONE, or Open Networking Environment, strategy includes an API platform to instill programmability into its three core operating systems: IOS, IOS XR and NX-OS. It's focused on five key markets and also includes new programmable ASICs, like the UADP chip unveiled with the Catalyst 3850 enterprise switch, and a software-based controller for data centers that runs on x86 servers. New ASICs are also expected to be front-and-center when Insieme Networks unveils what's expected to be a high-performance programmable switch and controller line.

Juniper's strategy initially targets data centers, and its new software licensing model is based on enterprise practices. The company will expand it into its traditional carrier and service provider customers from there.

Among the first markets addressed in Cisco's ONE strategy are enterprise customers, data centers and cloud providers.

"Juniper ultimately sees SDN at all layers of the network, spanning not only the data center — edge/access and core — but also the WAN, campus and branch," says IDC's Casemore.

"Cisco sees data center and cloud as near-term markets, and its positioning to play across the board as SDN — and its outcomes, network virtualization and network programmability — extends its reach," Casemore says. "Again, there are many similarities."

In terms of market disruption, Current Analysis' Fratto says both companies see SDN as perhaps equally disruptive even

though one has been much more vocal about that impact than the other.

"The two companies view SDN as disruptive but they are approaching it very differently," he says. "Juniper tends to be more conservative in bringing new products to market, particularly with Junos. They have a quarterly software update cycle and they march to that drum. I think they have a strong preference for stability in the platform and based on their consistent messaging on that topic."

"For Cisco, the disruption is there but the recent announcements tell a lot about its direction going forward," Fratto continues. "It signals ... wanting to be vendor and protocol agnostic versus promoting their own technology over others. The ONE controller, for example, is modular and will support OnePK and OpenFlow out of the gate, but there is no reason other than development that it can't support other protocols."

Casemore sees both companies reacting to SDN developments, rather than driving them.

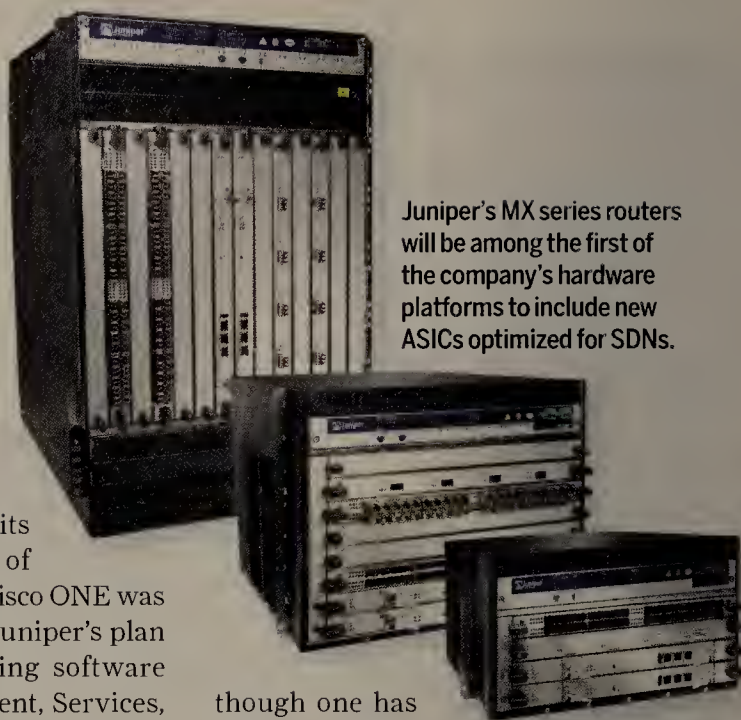
"Neither has led the charge toward SDN. Both are measuring their responses, trying to find a balance between supporting their customers today while preparing for potentially disruptive shifts."

And Casemore sees both equally emphasizing hardware, despite Juniper's software-intensive strategy.

"Juniper has a lot of existing hardware, and hardware customers, that it will attempt to fold into its SDN strategy," he says. "We will see hardware and software from both Cisco and Juniper, as their common ASIC strategies suggest."

Where the strategies diverge will be in partner ecosystems for SDN-enabled services, Fratto says.

"In both cases, they will need to attract partners into their respective ecosystems. The market for services has a ton of players — think [application delivery controllers], firewalls, WAN optimization. For those services to be chained, they have to be integrated with Juniper's stuff. Same for Cisco. That's going to be the attractor." ■



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¹ Based on IBM testing and documented in IBM System x[®] Virtualization Server Consolidation sizing methodology. IBM Flex System x240 supports 2.7X more Peak Utilization Virtual Machines (VMs) than previous generation BladeCenter[®] HS22V.

² Based on IDC white paper "The Economics of Virtualization: Moving Toward an Application-Based Cost Model," Michelle Bailey, November 2009, <http://www.vmware.com/files/pdf/Virtualization-application-based-cost-model-WP-EN.pdf>

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Tough times at VMware

VMware is laying off employees, exiting business units, and its CTO and CEO have left. Should customers worry?

BY BRANDON BUTLER

IN SOME people's eyes, VMware has had a tough past couple of weeks.

In the last week of January, the company revealed through a financial filing its plans to lay off 900 employees and exit some business units. The same day, the company's revenues missed forecasts pontificated by financial analysts, causing the company's stock to plummeted 22%. To top it all off, the tech company's CTO announced he's leaving VMware to pursue a venture capitalist career, less than six months after the company had a shakeup in the CEO role.

So, what's going on with VMware? Once the pre-eminent hypervisor company in an arena it practically invented, analysts say a series of moves during the past 18 months have reset the dynamics of the market. VMware — which storage giant EMC owns a majority stake of — still holds a leading position, but Microsoft's Hyper-V hypervisor is quickly gaining momentum.

"There really isn't any reason to fear that something drastic is going to happen to VMware," says Stuart Miniman, who tracks the virtualization market for the Wikibon Project. "At the same time, it's not a bad time for customers to re-evaluate their choices, given the increasing maturity of other products on the market. VSphere is still a solid choice, but there are other options to consider, and some may be a more attractive price-point."

If Zeus Kerravala, an independent industry analyst with ZK Research and a *Network World* blogger, had to point to one singular event that turned the hypervisor market into being a hyper-competitive one, it was what he and other pundits call the vTax flop. Two years ago, VMware changed the pricing model for its popular vSphere 5 management platform, charging customers based on the amount of virtual memory (vRAM) the system manages, instead of a per-CPU pricing.

In reality, the pricing changes resulted in some customers saving money and others paying slightly more, but a small yet vocal tangent of customers almost immediately cried foul, leading to the term "vTax" to be dubbed. A year later at VMworld 2012 the company's new CEO Pat Gelsinger reversed the pricing change and reverted to the original pricing model. But the damage had been done, Kerravala says, and the situation "opened the door" for users to look at other

hypervisors. Microsoft took advantage.

In the past 18 months Microsoft has not only been improving the functionality of its VMware-competing hypervisor, but it is also making a big marketing push to get the software into enterprise data centers where VMware has dominated. The third generation of Microsoft Hyper-V is included with a Windows Server 12 license, and the company has worked to beef it up. Microsoft doubled the RAM capacity per VM to 1TB, added live migration and upped the ability to manage nodes per cluster from 32 to 64. "Hyper-V is now at feature parity for a large percentage of enterprise workloads," says Forrester virtualization analyst David Bartoletti. "It's definitely 'good enough'" for many workloads.

Kerravala's research backs this up, too. A recent survey found 20% of respondents reporting they have deployed Microsoft Hyper-V in production data centers, with another 20% exploring it. The most surprising aspect of the survey: The respondents were all VMware users. "Microsoft is having a bigger impact than a lot of people believe," Kerravala says.

The rise and maturation of Microsoft's "good enough" Hyper-V is only part of the new dynamics in the virtualization market, though. The bigger issue is that hypervisors are becoming commoditized and VMware needs to look beyond just hypervisors for its growth moving forward, Bartoletti says.

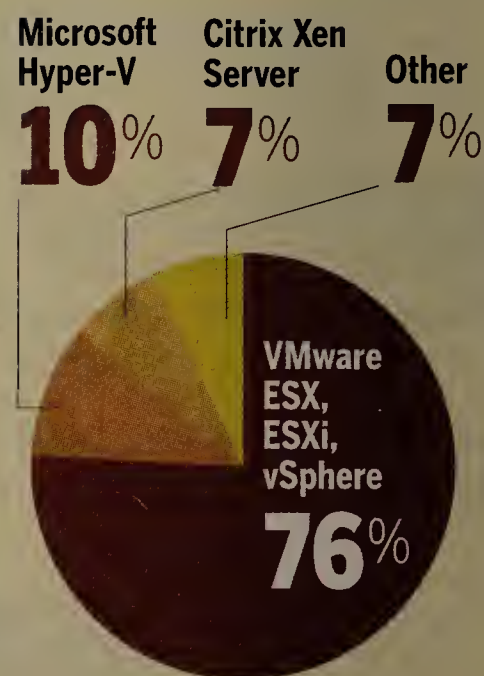
Mergers and acquisitions seem to be VMware's recent method of choice to expand its portfolio, but in doing so, the company has created new tensions with some of its oldest partners. VMware's biggest splash in the M&A market was to drop \$1.26 billion to buy Nicira, the virtual networking startup headed by the creator of the software-defined networking (SDN) protocol OpenFlow. While propelling VMware into the heart of the debate about next-generation networking, the acquisition also put a strain on VMware and parent-company EMC's relationship with networking giant Cisco. In response, Cisco has hinted at moves to distance itself from EMC and VMware, including recently cozying up with EMC competitor NetApp.

The M&A strategy could be related to the layoffs VMware has recently announced. While company officials declined to provide additional information about which sections of the business will be cut back, Kerravala says it's only natural after M&A that efficiencies can

424 Enterprise (20+ employees)
server decision makers were
asked in Q3, 2012:

**"Which virtualization
vendor do you use?"**

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be created by eliminating duplicate positions. Having CTO Steve Herrod leave less than six months after his former boss, Paul Maritz, left the top job at VMware, means a fresh shot of new ideas for the company, Kerravala says.

Customers don't seem to be hugely worried or swayed by the recent goings with the company. In fact, Kerravala says all in all, increased competition between VMware and Microsoft, as well as Citrix with Xen Server and Red Hat with the Kernel-based Virtual Machine (KVM), is a good thing for customers, Kerravala says.

Chris Harney is founder and president of the New England VMware User Group, which recently changed its name to the Virtualization Technology User Group to reflect the rise of non-VMware hypervisors used in the market. Harney says customers are choosing their virtualization technology based on their skill sets, pricing and availability.

"If you're really good with Citrix, then Xen is probably a good away to go," he says. VMware has the advantage, he says, because the company's been around longer, but he says there's a "perfect storm" of other hypervisors maturing, like Microsoft Hyper-V, while customers are looking for other options on the market. "I don't sense a lot of concern by users about problems VMware may be having," he says. As long as it doesn't impact the product, users likely will not care. "I don't expect to see people jumping ship, but it is interesting to see that there are other viable options out there on the market now for virtualization." ■

First look: Microsoft's Surface for Windows 8 Pro

BY TIM GREENE

MICROSOFT'S HOME-BUILT ultrabook called Surface for Windows 8 Pro went on sale last weekend and may be the Windows 8 device that best meets a wide range of corporate needs from tablet to desktop.

The device is built around an Intel i5 processor that gives it plenty of power to run intensive CAD-CAM applications, but it also has the capability and portability to perform as a tablet and notebook. At 2 pounds, it's light enough to carry around all day for workers whose jobs demand mobility.

Plus the device runs Windows 8, giving it the inherent security advantages the operating system has over Windows 7. And for those who don't like Windows 8, the 128GB version of the device has enough SSD space to run Windows 7 in its own partition.

There has been a good deal of complaining about the characterization of SSD storage capacity in Surface Pro. The models come with 64GB or 128GB drives, but significant chunks of those drives are unavailable as user space. Microsoft says only 23GB is available with the 64GB SSD and the 128GB version has only 83GB available. (The 128GB test loaner we had said 84.5GB was available.)

Microsoft says various external USB drives, cloud services (including Microsoft SkyDrive that comes with the device) and use of the microSDXC slot all represent options for expanding storage space for those who need it.

Battery life for the device is somewhere between 4.5 and 5 hours, Microsoft says, but it can be worse depending on what tasks it's performing. That's less than desirable for busy road warriors. The battery can't be popped out and replaced with one that's freshly charged as is the case with most laptops.

The keyboard — which is sold separately — can be flipped under or removed for the device to be used as a tablet or notebook. A stylus using Wacom Passive Pen technology comes standard supporting an eraser and right mouse-click.

The keyboards' performances are significantly different. Touch has a flat surface with the keyboard image embossed on it. The

Love and hate

Nothing is perfect, including Microsoft's Surface for Windows 8 Pro ultrabook, but it does have some nice features.



1. It supports the full version of Windows 8 and therefore any applications that run on Windows 7.

2. Has enough horsepower to run Windows 7 in a virtual machine for those who hate Windows 8.

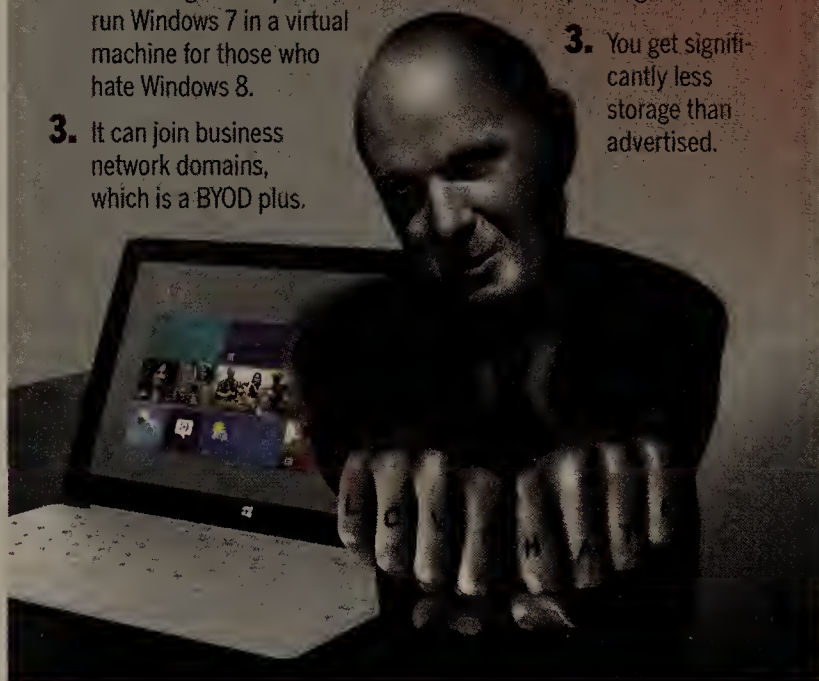
3. It can join business network domains, which is a BYOD plus.



1. You can't adjust the camera angle.

2. The battery life is poor. Microsoft claims 4.5 to 5 hours, but it can be less depending on workload.

3. You get significantly less storage than advertised.



"keys" don't depress, but they do respond to finger-tap pressure. The Type has mechanical keys that do depress.

The best trial time our test subject turned in during a typing test using Type keyboard was 97 words per minute with 99.5% accuracy. With Touch it was 83 words per minute with 97.2% accuracy. (The test subject says tactile feedback is important to a good score, and Touch gives less than Type. Also there's a tendency initially to type harder with Touch than is necessary, which reduces speed.)

The keyboards attach to the computer via magnetic strips strong enough to dangle the 2-pound tablet from the keyboard without fear of its falling off. When the keyboard is folded under to use the device as a tablet or notebook, a switch in the hinge turns off keyboard input so it doesn't fire off random keystrokes.

Surface Pro comes in two models: 64GB SSD for \$899; 128GB SSD for \$999. That doesn't include either Touch (\$120) or Type (\$130), so the unit with keyboard could cost

as much as \$1,130.

That's a lot of money for a tablet, but if it's for a worker who uses both a tablet and a full desktop, it becomes more reasonable by eliminating the need for two devices. Plus Surface Pro runs any application that runs on Windows 7, so it supports whatever standard corporate application image is currently in use.

Also by virtue of running Windows 8, Surface Pro has better security than Windows 7 in a range of areas, including secure boot and two options for restoring machines to earlier versions if they get corrupted.

Windows 8 also supports Windows To Go, a full manageable image of a Windows 8 machine on a memory stick that can boot up the image on any Windows 8 or Windows 7 host. This means workers can carry their desktop in their pocket and work on it using borrowed devices.

Getting back to Surface Pro itself, a prop that Microsoft calls a kickstand pops out the back to hold the screen upright when Surface Pro is being used as a laptop. That increases the tabletop footprint of the device from 10.81 x 6.81 inches to 10.81 x 10 inches.

A conventional laptop with a screen whose hinges hold it up could sit in the smaller space.

The device has front- and rear-facing 720p cameras for still and video photography and to support video calls like Skype. Because of the fixed angle of the screen where the front-facing camera is positioned, Microsoft has angled the lens to properly frame the user. But depending on how tall the user is, the height of the chair and the height of the desk, the user's image can be cropped.

The 1.7GHz Intel processor generates significant heat so Surface Pro is equipped with two fans that are vented through a thin slot that runs along all four sides of the edge. Microsoft says it has patented fan technology that taps into the device's accelerometer, which supplies information about what angle it's being held at and automatically optimizes the spinning of the fans to cool most effectively.

The fans are virtually inaudible in an office building whose HVAC system is running, but they can be heard. ■

Office Web Apps cuts into Google Docs' lead

BY MARIA KOROLOV

FOR YEARS, folks looking for free online word processing, spreadsheets, and presentations have turned to Google Docs. However, Microsoft recently released an updated set of Office Web Apps, accessible to individual users from their SkyDrive accounts, and to business users through Office 365 and SharePoint.

The Microsoft apps now support printing, touch-screen tablets, and add some other previously missing features. While overall, Google Apps offers more functionality, the Office Web Apps is starting to show promise, especially for companies committed to the Microsoft ecosystem because Microsoft's platform makes it simple to open documents in the full, desktop-based Office software.

However, some Office Web Apps seems to be missing key components required for basic usability. The Word Web App, for example, is missing the autosave function and the Excel Web App doesn't allow users to freeze rows.

Office Web Apps are not the same as Office on Demand, which is a streaming service that offers the full-featured Office software as part of an Office 2013 subscription.

Both the Microsoft and Google platforms allow the upload, import, and editing of Office documents, creation of new documents, and saving files in the familiar Office formats. Both offer collaboration tools and mobile access.

Here's a feature-by-feature comparison of the two products.

Price

➔ MIXED BAG

Microsoft's Office Web Apps is free for individual users. Businesses can sign up for Office 365 plans, which start at \$6 per user per month for up to 50 users, and include online email and shared calendars, in addition to the Office Web Apps. However, the basic plan does not include live support — for that you'd need to upgrade to the \$8 per user per month plan, which also comes with a SharePoint intranet. If your company is already using SharePoint, Web Apps require the purchase of an additional license.

The basic version of Google Docs used to be free for everyone, including business users, but Google changed its pricing structure in December. It's still free for individual users, and existing business users on the free plan. But new business users will need to pay \$50 per user per year, or \$120 per user per year with advanced security and e-discovery features.

Office Web Apps

- Word, Excel, PowerPoint, OneNote
- Integration with desktop-based Office software

ONLINE COLLABORATION

FEATURES: In progress

MOBILE SUPPORT: Varies

- Free version for individuals only

Google Docs

- Word processing, spreadsheet, presentations, graphics
- Integration with Gmail, other Google Apps

ONLINE COLLABORATION

FEATURES: Robust

MOBILE SUPPORT: Varies

- Free version for both individuals and pre-existing business users

Storage

ADVANTAGE ➔ Microsoft

Microsoft's Office Web Apps is located on its SkyDrive platform, which currently comes with 7 free gigabytes of storage, plus an unlimited amount of storage for the associated Hotmail or Outlook.com email account. Each additional 100GB of storage is \$50 per year.

Google Docs is located on the Google Drive platform, which currently comes with 5 free gigabytes of storage — in addition to the 10GB for the associated Gmail account and unlimited storage for Google Docs and shared documents. Each additional 100GB of storage is \$60 per year.

Both SkyDrive and Google Drive come with desktop software that allows users to automatically synchronize folders.

Sharing

ADVANTAGE ➔ Google

Both Office Web Apps and Google Docs allow documents to be embedded in webpages, or shared with collaborators.

But, in general, Google offers a more streamlined and complete collaboration experience for online users, with integrated chat panes and real-time updates — every user of a document sees the changes that other users are making, as they are made. In

addition, Google Docs allows any document to be emailed right from the application, in a variety of formats, including the standard Office formats, text and PDF.

Office Web Apps promises better integration with desktop-based Office applications, but the tools are rudimentary, cumbersome, and inconsistent across the apps.

Word processing

ADVANTAGE ➔ Google

With the Word Web App — as with the other Office Web Apps — there's a preview mode, which is pretty faithful to the original documents. And then there's the edit mode, which shows a simplified version of the document. If you are working on a Word document that uses features that the Word Web App doesn't support, those features will still be there in the document when you re-open it with the full app. The result can be confusing, because when you're online you're editing a document that will look different when printed or downloaded.

But the single biggest missing feature of the Word Web App is autosave. This is a must-have for any Web-based app, especially if Internet connectivity is intermittent.

The word processor in Google Docs has been around the longest, has more formatting tools, and has hundreds of fonts. Plus, what you see is what you get: you can save the document in multiple formats, and they'll be faithful to what you've got on the screen.

Spreadsheet

➔ MIXED BAG

Like the Word Web App, the Excel Web App has the ever-present "ribbon" interface style.

Unlike the Word Web App, the Excel Web App does save changes automatically, which is great news for folks on iffy Internet connections, and for people collaborating online.

Both the Excel Web App and Google Docs' spreadsheet app support the standard spreadsheet functions, including creating charts. Both also have the capability to create Web surveys — called forms in Google Docs.

The Excel Web App supports more Excel functions than Google Docs does, so complex spreadsheets may transfer over more easily. However, it does not support macros, does not allow you to freeze header rows, and won't let you email a copy of the spreadsheet as an attachment right from the application.

The Google version supports scripts, freezes rows, and lets users email a copy of the spreadsheet from within the application in Excel, PDF or CSV format.

The inability to freeze rows and better collaboration gives Google Docs the edge for Web-only users, but better integration with Excel gives the Microsoft app the edge for existing Office users.

Presentations

ADVANTAGE ➔ Microsoft

The PowerPoint Web App offers a choice of nine starting templates, while Google's presentation app offers 20 - but the PowerPoint templates are nicer than Google's. Both have all the basic editing tools, and ability to share the presentations with the public and embed them into websites.

Graphics

ADVANTAGE ➔ Google

Google Docs has a nice application for collaboratively creating simple graphics and charts online. There is no equivalent tool in the Office Web Apps.

Mobile

➔ MIXED BAG

The Google Drive mobile allows editing of word processing documents right from the app, and viewing of spreadsheets, presentations and graphics. There's an option to open the files in other applications as well.

The SkyDrive mobile app shows previews of word processing documents, spreadsheets, PDFs and presentations, but not OneNote notebooks. As with the Google Drive app, there's an option to open the files in other applications.

Both SkyDrive and Google Drive can also be accessed from a mobile browser such as Safari, and both default to a mobile-friendly interface. Google Docs, however, allows mobile-friendly editing of spreadsheets and word processing documents. Google also easily switches into "desktop" mode, which allows full editing of graphics files.

SkyDrive does not easily switch into desktop mode, and defaults back to view-only mode for individual documents. However, there's an excellent — and free — standalone OneNote app for the iPhone and Android platforms as well as for the Windows RT tablet.

Microsoft says all the Office Web Apps documents are fully editable on iOS and Windows tablets, and are optimized for the touch interface.

The tablet version of the Google Drive app doesn't have a lot of functionality, but Google Docs can be easily accessed and edited through a tablet's browser.

Bottom Line

For existing Google Docs users, there's nothing — yet — in Office Web Apps that should make them rush to switch over. Individuals and companies committed to Office, SharePoint or Office 365 should keep an eye on the Office Web Apps, but wait before committing any money to the platform.

Microsoft needs to demonstrate that it is serious about the Web apps, filling in the missing functionality, and improving collaboration and mobile support — even if it cuts into its existing Office user base. ■

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NETINSIDER | BY SCOTT BRADNER

Waiting on Obama's online privacy effort

IT HAS now been just about a year since the Obama administration put forth its online privacy blueprint. In spite of a title on the announcement that insisted "We Can't Wait," not much has happened since the blueprint was published. Meanwhile, things are heating up on the online privacy front in Europe, and the contrast between the United States and European viewpoints is and is not stark.

The Obama administration blueprint starts off with the clearly nonsensical statement that "The consumer data privacy framework in the United States is, in fact, strong." There is nothing that could remotely be called a "consumer data privacy framework" in the U.S. Every company that collects information about you and me is free to do whatever it wants with that data, except for some narrow exceptions around medical records and quirky things like videotape rental records, and there is an attempt to dilute even that exception. There is nothing in the U.S. that says you, as the person some data is about, has any right to know that the data exists or what it will be used for (never mind having any say in how it can be used).

The European Union (EU) rules are a lot stronger and may be getting stronger still, and many in the U.S. are not happy about the prospect.

The broad picture that the Obama blueprint paints is not all that different from a surface reading of the EU rules. The Obama blueprint's six consumer rights (individual control, transparency, respect for context, access and accuracy, focused collection and accountability) sound quite like the EU's seven principles (notice, purpose, consent, security, disclosure, access and accountability).

One basic difference is in the definition of "accountability." In both

the U.S. and the EU a data holder is supposed to be accountable for abiding by the principles of consumer rights. In the EU, governmental authorities have big sticks they can use to punish data holders who do not do their part — up to 2% of a company's annual revenue.

In the U.S. there is far less of a governmental role. The Obama blueprint proposes to strengthen the role of the Federal Trade Commission (FTC) in enforcement, but historically the FTC has been more of a kitten than a tiger when it comes to enforcement. Most of the time the FTC gets a company to agree to not be bad again and to pay a fine that represents a small percentage of the extra money the company made from the violation. The Obama blueprint wants "a sustained commitment of all stakeholders to address consumer data privacy issues as they arise from advances in technologies and business models." "Commitment" is all well and good, but a few big sticks might meaningfully increase the level of commitment.

Having said all that, some movement toward the Obama blueprint would be nice. I can understand why there was not much movement in an election year but, it is time to move. Some progress here might avert the worst of the trade war with the EU predicted by one U.S. official. It might also be good for you and me, whose data is cached in places we have no idea even exist.

Disclaimer: Harvard, I assume, obeys EU rules when in the EU but has expressed no opinion on either the Obama blueprint or the updated EU rules. So the above is my desire for a tiny bit of privacy. ■

Bradner is a senior technology consultant at Harvard University. He can be reached at sob@sobco.com.

FreeNAS: Flexible and fast storage

BY DAVID NEWMAN

It takes something different to stand out in the crowded network-attached storage market. How does free, as in free beer and free speech, sound?

That's the premise behind FreeNAS, the open-source storage software that supports every major file-sharing protocol out there. FreeNAS can look like a Windows server or an iSCSI target, among other server types. It's managed by a Web interface that's more intuitive than some commercial storage appliances we've used. And FreeNAS offers the innovative ZFS file system, with built-in integrity checks, flexible and virtually unlimited scalability, and good performance.

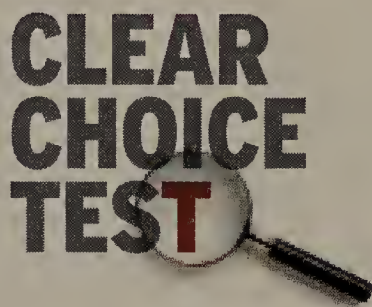
In this Clear Choice test, we evaluated FreeNAS on an iX-2212 server supplied by server vendor iXsystems, a major supporter of the FreeNAS project. While iXsystems sells commercially supported TrueNAS systems built on FreeNAS, the company made clear that the software package is free, and can be installed on any PC hardware, 32- or 64-bit.

Installation is fast and straightforward. Once the system is set up, it's managed by either a well-designed Web interface or the command-line interface (CLI). Even allowing for our strong CLI bias, we could achieve virtually every task from the Web UI as well, right down to setting low-level parameters in the FreeBSD operating system on which FreeNAS is based. (For those new to FreeBSD, the default parameters worked fine in our testing; there's no need to change OS parameters, or know anything about FreeBSD, for that matter.)

FreeNAS supports multiple file-sharing protocols, including CIFS, NFS and iSCSI, making it suitable as a file-sharing device for Windows, Mac and Unix/Linux clients. And iSCSI support makes FreeNAS a good choice for shared storage of virtual machines. FreeNAS also can act as an FTP and TFTP server, and it supports rsync for backup to and from the appliance. And it can be configured as a backup server for Windows Shadow Copy and Apple Time Machine.

Thanks to its ZFS support, FreeNAS performs "snapshots" of its file systems for local and remote backups, similar to Windows restore points. FreeNAS can send snapshots incrementally, reducing backup sizes. Even if all the redundancy features in a FreeNAS system were to fail, the data would still be recoverable by restoring a backed-up snapshot to a new system.

A FreeNAS appliance can act as an iTunes streaming media server, a universal



plug-and-play (uPnP) server or a Web server, all using available plug-ins. The plug-ins use FreeBSD's virtual "jails," which means a problem with one plug-in won't affect anything in the rest of the system.

Introducing ZFS

Perhaps the best single feature in FreeNAS is its optional use of the zettabyte file system (ZFS), first developed by Sun and now actively maintained as a FreeBSD project.

A ZFS system can hold a 16-exabyte file (about 18 million terabytes) or 200 million files. Even in a big data world, capacity isn't going to be a problem with ZFS.

ZFS is a speedy performer, as we'll show with test results, but it's also extremely flexible and easy to manage. It supports up to 18.4 quintillion snapshots for a virtually unlimited amount of rolling backward and forward.

Data integrity is a ZFS hallmark. Instead of relying on the underlying hardware to detect errors, every block in a ZFS system uses a 256-bit checksum to validate data. In a redundant system using mirroring or RAID, ZFS automatically reconstructs any corrupted blocks without user intervention. Because ZFS continually validates data integrity on disk, a FreeNAS appliance can survive loss of power without the need to run the Unix fsck command on each volume afterward.

And ZFS is really a RAID controller,

volume manager and file system rolled into one. There's no need for separate management tools for each, as in many other enterprise storage products.

On the RAID front, FreeNAS offers lots of choices for how volumes are assembled. In addition to many RAID choices (RAID 0, 1, 5, 6, 10, 50 and 60), ZFS has two of its own methods called raidz1 and raidz2. The raidz1 option is similar to RAID 5, except that it can tolerate the loss of multiple disks, thus fixing RAID 5's "write hole" problem. The raidz2 option is similar to RAID 6, offering double parity checking, and like raidz1 it too can handle the loss of multiple disks.

Unlike conventional volume managers and file systems, ZFS doesn't use fixed-size partitions or volumes. If current volumes don't offer enough capacity, ZFS makes it easy to add more — to a live production system, with zero downtime. During testing, we expanded a ZFS storage pool using one command, with no need to take devices or file systems offline. This expandability even extends to adding different-size disks into a storage pool (though the usual size rules with RAID still apply).

ZFS also offers optional compression of selected storage pools. This can improve performance, since the time taken to compress a pool is faster than the time to read and write uncompressed data to disk. Compression is a natural fit for storage pools with lots of text files, such as logs.

The drawbacks with using ZFS are minor, and might not even be considered drawbacks in many cases. First, because ZFS owes much of its performance to caching, it's best installed on servers with lots of RAM. While 6GB will suffice in theory, in practice ZFS systems should have more — lots more. The system iXsystems supplied had 48GB of RAM, though we've also run FreeNAS in systems with 16GB and 24GB of RAM with good results. In general, though, the more ZFS can cache, the faster its I/O performance.

If available RAM is really an issue, FreeNAS also can be installed using FreeBSD's regular UFS file system with as little as 2GB of RAM.

Second, due to licensing issues, ZFS runs mainly on BSD systems, though there is a Linux port available (of ZFS only, not the entire FreeNAS system). The choice of operating system is a nonissue with FreeNAS, which is a turnkey distribution built on FreeBSD. Even users unfamiliar with FreeBSD should be fine with FreeNAS, since it's managed through an intuitive and powerful Web interface.

Licensing is really only an issue for developers. ZFS's Common Development and

NETRESULTS

Product	FreeNAS
Price	Free for software; \$7,800 for iX-2212 appliance supplied by iXsystems
URL	freenas.org
Pros	No-cost software; easy to manage; good performance; ZFS offers unparalleled data integrity and flexibility
Cons	ZFS does best with lots of RAM

Distribution License (CDDL) license allows free re-use of source code (including the right to convert to closed-source code), while the GNU 2.0 and 3.0 licenses in the Linux world require changes to be committed back into open-source distributions.

FreeNAS performance

Storage performance benchmarking is a complex topic, with many variables involved. To determine how FreeNAS would handle the most common types of operations, we set up a 10-gigabit test bed and used the open-source iozone benchmarking tool.

The key variables in I/O performance involve the kinds of operations a storage device will handle. Devices may move data in small or large blocks — think of a database handling small transactions, versus a file manager moving large virtual machine images around. The type of operation also is important; writing to a disk tends to take longer than reading from it. Due to caching, an initial read or write operation probably will take longer than a re-read or re-write. And operations that use sequential blocks on a disk will outperform random reads and writes, since in the latter case, the disk head moves around a lot.

We configured the IOzone tool to measure I/O performance for six test cases, each with the FreeNAS appliance acting as a Network File System (NFS) server for two NFS clients, also equipped with 10-gigabit Ethernet adapters. We ran all six sets of tests twice, using small and large record sizes.

One thing we did not do was allow FreeNAS to use all 48GB of the RAM in the server supplied by iXsystems. Like any modern operating system, FreeBSD puts as much data as possible into RAM before having to swap out to disk. Serving data from RAM means much higher performance for relatively small reads and writes, but it's not representative of the performance users would see in production. This is especially true when many users are involved; then, reading and writing from disk becomes inevitable.

To ensure a balance of disk I/O and caching performance, we configured the FreeNAS server to use only 6GB of RAM, the minimum supported with ZFS, and then we read or wrote 64GB in each test — well in excess of the available RAM. We also configured both NFS client machines to use 6GB of RAM, even though both had 16GB available.

Test results

FreeNAS performance is fast, especially with sequential reads and re-reads (see the

FreeNAS performance

FreeNAS is fast, especially with sequential reads and re-reads.

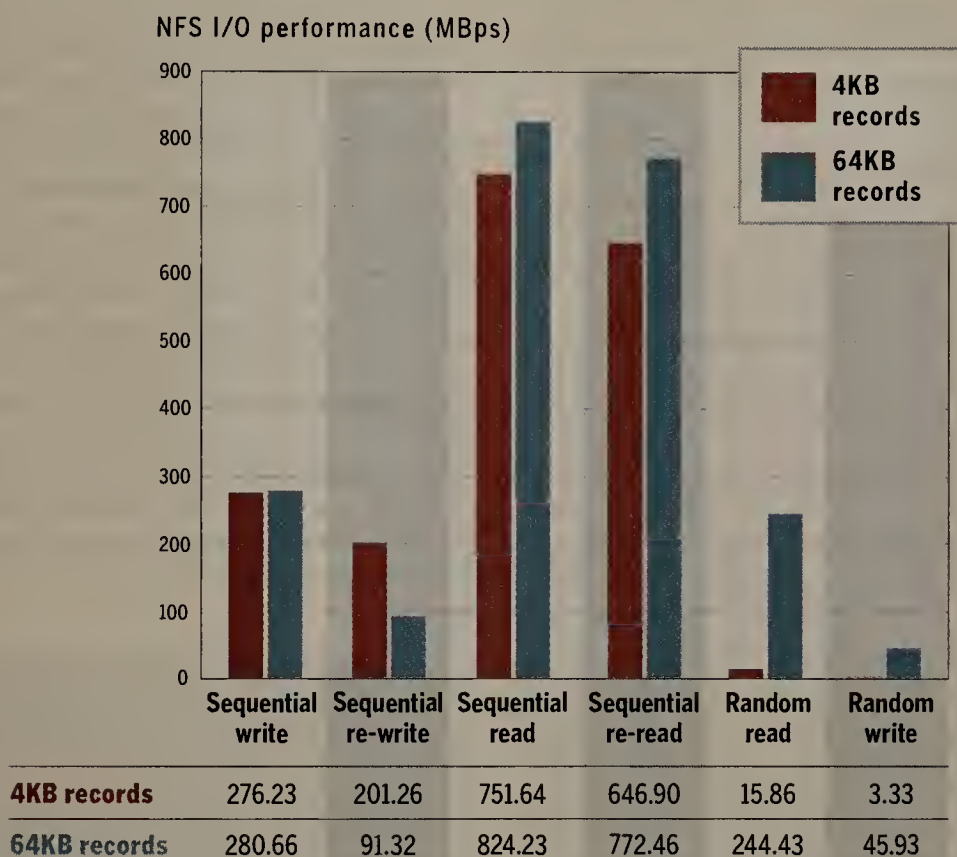


figure above). Storage performance tests usually measure I/O in bytes per second; when expressed in bits, FreeNAS read and re-read data at rates at or above 6Gbps.

That 6Gbps top speed also includes several other factors: The 6Gbps speed limit of SATA 3 disks; the overhead added by the NFS protocol; the contention among multiple TCP flows (there were 16 threads active during these tests); and the amount of disk I/O relative to data read from RAM. The top speeds achieved here are about as fast as the hardware could possibly go under these test conditions.

Write and re-write performance was slower than reads, as usual in I/O benchmarking. With sequential rewrites, FreeNAS moved traffic at rates of around 280MBps. Curiously, sequential rewrites went twice as fast with 4KB records than with 64KB ones. The most likely explanation is that the time involved in writing the larger amount of data to disk favored the smaller record size.

Sequential write and read tests are meaningful when writing or reading large amounts of data on a relatively empty disk. Once the disk fills up, or if the application involves reading from different parts of a

database, then random read and write tests become more important.

Results are much slower for random read and write tests. That's not surprising considering that disk heads move around a lot more in a random test than they would with sequential operations. Here, the larger 64KB records help, since there's more time spent writing or reading relative to disk seek time. Still, both 4KB and 64KB read and write times are just a fraction of the sequential times.

In the worst case, writes of 4KB records are just 3MBps, compared with 276MBps with sequential writes. In fairness, though, any storage systems would do far worse in random tests than in sequential ones. These results aren't a reflection on FreeNAS or ZFS.

Overall, FreeNAS offers a very positive story, with flexibility, ease of management, good performance — and a price that can't be beat. ■

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Remembering Lotus as IBM kills off name

BY JULIE SARTAIN

THIRTY-ONE YEARS ago, Massachusetts-based software developers Mitch Kapor and Jonathan Sachs created a program — an electronic spreadsheet — that would change the world. A year later, on Jan. 26, 1983, Lotus Development Corp. released Lotus 1-2-3 for the IBM PC and grossed \$53 million in sales. The following year, sales tripled to more than \$150 million.

IBM bought Lotus in 1995 and kept the Notes product line alive. IBM announced this past December that the newest release of Notes/Domino would drop the Lotus name. And the annual Lotusphere conference was conducted last week under the name Connect 2013.

Many other Lotus products have come and gone through the years including Symphony, SmartSuite and Lotus Works. But the greatest and most successful product was Lotus

an agreement from 1984 until Lotus acquired Iris in 1994. Iris was responsible for all product development, and Lotus was responsible for everything else (marketing, sales, distribution, support).

According to Ozzie, the Lotus brand was, initially, all about desktop computing; it was about tools for personal empowerment and personal computing. With the advent of Notes, the Lotus brand grew to be inclusive of tools for interpersonal empowerment and collaborative work — things that today are regarded as “tools for social productivity.”

“The post-PC world of today makes the ‘desktop’ attributes of the original Lotus brand far less relevant to today’s offerings and, in that respect, it may have been a hindrance to IBM. Furthermore, IBM has itself evolved and expanded over the years from being a ‘tools and technologies’ company to being a ‘solutions’ company. And, over that period — driven, in large part, by the Internet — social

to provide these features,” Halvorsen says. “Ray and I worked on the low-level coding framework, as well as developing the Notes database (a.k.a. ‘NSF’) implementation and the word processing component. I also acted as the overall development project leader coordinating the work lists and tracking development schedules, plus coordinated the work of creating intermediate beta versions of the code for testing.”

Kapor had previously developed two business programs for VisiCorp: VisiTrend (a statistics program) and VisiPlot (a program that generated business charts) before taking on Lotus. He made \$500,000 on the spreadsheet version, VisiCalc, before VisiCorp bought him out for \$1.7 million. But Kapor wanted more — he wanted a spreadsheet that would translate digits into graphs and calculate numbers at lightning speed, so he partnered with Sachs to develop Lotus 1-2-3.

Kapor raised \$5 million (from investors)



WHERE ARE THEY NOW?

Notes (a.k.a. Domino/Notes), a new type of software program labeled “groupware,” which was designed for several computer users to collaborate on projects from long-distance locations via a network.

Notes was founded and developed in 1984 by Ray Ozzie, Tim Halvorsen and Len Kawell, with Steven Beckhardt soon to follow. The product did not launch until five years later. It wasn’t until Sheldon Laube, CIO of PricewaterhouseCoopers (PwC), contracted for 10,000 copies of Notes the day before it launched that the world came to really know Lotus.

Today, the loss of the name doesn’t sadden the Lotus founders, but does provide fond memories of what life was like in the groupware’s beginning.

Ozzie founded Iris Associates in December 1984 to create Notes. Iris and Lotus had

technologies have been woven into most every solution that they build,” Ozzie says.

Iris Associates co-founder Halvorsen recalls, “We were all friends from our college days, having all worked on the development team of a computer system at the University of Illinois called PLATO, a computer-based learning system. The PLATO system had a number of features that allowed people to interact; e.g., electronic mail, real-time chatting and group discussions.”

According to Halvorsen, the trio decided to use their experience to create ways for the new personal computers to easily communicate, which would then allow the users to easily and effectively communicate and collaborate with each other.

“We started out immediately designing and writing the first version of Lotus Notes

and, in January 1983, Lotus 1-2-3 became the No. 1 software program on the planet, selling close to 110,000 copies in nine months at \$495 per unit. By December 1983, Lotus was the second-largest software company in the world (behind Microsoft) with sales of \$53 million (which tripled) and a staff of 250 (which doubled) by 1984.

Sachs spent 10 months writing Lotus 1-2-3 in Assembly for the IBM personal computer. The program was almost completely bug-free, lightning fast and extremely efficient. Lotus introduced the on-screen hierarchical letter menus (accessed by typing the slash key prior to executing the commands); for example, keystrokes slash key, letter F, letter S means “File Save.” This user access design is still used in most Windows applications. Later versions of 1-2-3 were written in

C, partially to accommodate the programs' growth and complexity and partially to make it easier for integration with other programs.

Kawell was the third co-founder, co-designer and co-developer of the Lotus Notes project, and vice president of Iris Associates from 1985 to 1998. He was responsible for the ongoing development of the Lotus Notes Mail client and the server software. In addition, he developed and co-designed the Internet and TCP/IP-based protocols for the integration of the Notes and Domino products.

"I was primarily responsible for creating the Notes user interface, mail and security features," Kawell says. "And later, I led the teams that continued the development of the entire Notes client. I also engineered and managed the transition of the Notes client to supporting Internet and Web features in the early '90s. For 13 years, I co-managed and grew the development team from our original team of three people to over 300 developers."

units the day before the official release. Later, Bill Eisner ordered 10,000 copies for the CIA.

Many Lotus players (including Kapor, Ozzie, Moore and Halvorsen) have commented, in published interviews, that from an overall Lotus growth perspective, especially as a public company, the most notable leader was Jim Manzi. Manzi was president of Lotus from October 1984 to 1995, and CEO from April 1986 until IBM's hostile takeover in 1995. During Manzi's tenure, Lotus 1-2-3 sold 750,000 copies in 1986 (three times its nearest competitor, Microsoft's Multiplan). At one point, Lotus sales represented 17.6% of all software sales in the business world.

Louis V. Gerstner Jr. is another leader in the Lotus/IBM story who has garnered much notoriety and respect from his col-

channel, which had more than 6,000 resellers of Notes during its high point. In addition, from 1992 to 1995, Moore managed the IBM/Lotus relationship through its acquisition.

Alan Lepofsky worked for IBM/Lotus from 1993 to 2007. He helped run the Notes/Domino customer council, was part of the product marketing team, worked with the



MITCH KAPOR: www.kaporcapital.com, www.LPFI.org and www.mkf.org, in addition to his main website at www.kapor.com. He's a partner at Kapor Capital. **JONATHAN SACHS:** owns a photo editing software program called Digital Light & Color. **RAY OZZIE:** founder and CEO of Talko, a startup that concentrates on a new class of mobile-centric software and services. **Tim Halvorsen:** has been involved at the board level with various startups and worked as a part-time software consultant. He recently joined a new startup called Clear Ballot Group as CTO and the primary designer. **STEVE BECKHARDT:** works in the software development team at Sonos. **JIM MANZI:** chairman of StoneGate Capital Group since 1995; became chairman of a Web and voice conferencing company called Interwise. **LARRY MOORE:** principal in the Clear Ballot Group. **ALAN LEPOFSKY:** has been vice president and principal analyst at Constellation Research.

Beckhardt worked on Notes/Domino for 15 years, from 1985 to 2000. He joined Iris Associates about three months after the company started. "I designed the original Notes Server (before it was renamed Domino)," he says, "But I'm probably best known for designing the Notes replication system. I also worked on many other areas including encryption, networking, full text search, etc."

With all of this computer programming expertise, Lotus still needed to be sold, otherwise it would have been become the best-known shelfware. While Laube was not a Lotus Notes founder, developer, creator or designer, Ozzie and Larry Moore both credit him and PwC for Lotus Notes initial acceptance and success. Laube was PwC's first CIO responsible for improving client services through technology. He was the driving force behind standardizing desktop productivity applications on a global basis and solely responsible for the largest software acquisition ever made (at that time). The program was Lotus Notes, and PwC purchased 10,000

licenses for his place and contribution to the success of Lotus Notes. Gerstner was chairman and CEO of IBM from April 1993 until February 2002. He is credited with restoring IBM to its former glory. He laid off thousands, restructured management, reorganized the company's infrastructure and modernized the products (hardware and software), while simultaneously revamping the company's mainframe division. As a result of his efforts, Gerstner grew Lotus products from 2 million users to more than 22 million users, and re-established Big Blue as a corporate giant.

Moore was another key executive in the Lotus lineup. He was vice president and general manager of the Communications Products Division/Lotus Notes from 1988 to 1992 and the motivating force behind the release of Lotus Notes, which has generated more than \$7 billion in sales; that is, about \$450 million a year. His colleagues credit his management and marketing expertise for much of Notes initial success. One of his strategies included the creation of the Lotus Notes reseller

business partner organization, and worked on the strategy team that helped share the future software products.

What about the Lotus name?

The founders of Lotus are not too broken up over IBM's decision to drop the name.

"I think 30 years was a really excellent run, and all things must pass," Kapor says.

Ozzie explains that to keep customers from being confused, IBM really only had two choices: to grow the use of Lotus as a "social ingredient brand" in all its relevant solution offerings, regardless of its technical heritage, or to eliminate it and say, "IBM itself means social."

"Either one of those conclusions would make sense, so the determination to retire the Lotus brand was likely a good one. It had a good run. I'm not surprised and it was a wise business decision," Ozzie says.

"As for IBM dropping Lotus as a brand, this is not something I am going to lose sleep about," Manzi says. ■

TOOLS

NuoDB, a new approach to SQL databases

I feel like some kind of dubious character from a crime movie: “Psst, buddy! Wanna cloud database that’s non-stop, geographically and elastically scalable? And it’s also ACID compliant, roughly 75% of the cost of using Oracle, good at hybrid workloads, SQL-compliant, ridiculously easy to install, equally easy to manage, and runs on multiple platforms. And did I mention cheap? Oh yeah, I did.”

Anyway, those are the claims made by NuoDB about its eponymous database product, and its pitch for what it calls a Cloud Data Management System is compelling. A few weeks ago, just before NuoDB’s mid-January launch, I talked with one of the company’s founders and CEO, Barry Morris, about the product, and it’s a fascinating story.

One of NuoDB’s design presumptions was that optimization is hard but scale-out is easy. In other words, if you want better performance from your database you can do the time-honored wash-rinse-repeat cycle beloved by database analysts everywhere (measure, analyze, tune, re-measure, re-analyze, etc.), or you can just throw more hardware at the problem. And that is what NuoDB has chosen to do.

Of course, throwing more hardware at a database performance problem requires that the database system be easy to scale which, in turn, requires an architecture that is modular rather than monolithic. And that’s what NuoDB is: a distributed system

of self-organizing units rather than using the hub-and-spoke command and control architecture of traditional databases.

A consequence of this architecture is that installing a NuoDB host takes about five minutes, has hardly any parameters to set, and requires very little in the way of administration once it’s running!

Where NuoDB gets really interesting is that communications between the hosts is not synchronous as you might expect, but rather asynchronous which, while it requires high bandwidth connections between hosts, is not overly sensitive to network latency, making it more compatible with real-world WAN configurations.

The issue of NuoDB

being good at handling hybrid loads — that is, making analytical queries while under transactional loading — is a powerful argument for the product, because most major SQL database product performance will tank if you try such a thing.

Fundamental to NuoDB is being SQL-compliant (It is ANSI SQL-92 compliant with SQL-99 extensions, and works with



Mark Gibbs' Gearhead

and ships with a set of JDBC/ODBC drivers) which, it is claimed, makes it a “drop-in” replacement for any standard SQL environment. Morris told me of a customer who moved an Oracle-based application with 500 tables, hundreds of threads, and many complex interactions to NuoDB in under one month.

So, how powerful is NuoDB? The company claims that a load of 1 million transactions per second could be handled by NuoDB running on 20 cheap servers connected by Gigabit Ethernet. Running on Amazon EC2, Windows, Linux, OS X and Solaris, NuoDB can use a local file system, Amazon S3 or a Hadoop Distributed File System for storage.

There are two no-cost editions: Free, which supports two hosts and 4GB of storage (HDFS is not supported as a storage option) and is available for users, while Developer (for development only, of course) allows for unlimited hosts and has no storage limits. If you want to use NuoDB for production systems then pricing starts at a very reasonable \$1,200 per annum for two hosts and 16GB of storage.

Prior to the January launch some 3,000 beta users had signed up, and at the launch NuoDB announced that AutoZone, the automotive parts distributor and retailer, will be implementing the database for provisioning and management of up-to-the-minute digital signage in its 5,000 outlets in the U.S., Puerto Rico, Mexico and Brazil.

For high-performance, resilient, low-cost database solutions, NuoDB is definitely worth checking out. ■

Gibbs is impressed in Ventura, Calif. Your impressions to gearhead@gibbs.com and follow him on Twitter and App.net (@quistuipater) and on Facebook (quistuipater).



NuoDB CEO Barry Morris has a compelling story about his company’s cloud data management system.



The Acer Aspire S7: a super-thin yet powerful Windows 8 notebook.



Keith Shaw's
Cool Tools

GADGETS

Pre-spring cleaning the Cool Tools offices

WE'RE IN OUR post-holiday, post-CES cleanup (pre-spring!) in the Cool Tools offices, so here are some rapid-fire reviews of things we've been toying with over the past few weeks.

► **Acer Aspire S7 ultrabook:** If you're looking for a super-thin yet powerful Windows 8 notebook, check out the Aspire S7 series. The S7-391 model I tried includes a 13.3-inch high-definition touchscreen, aluminum case and Gorilla Glass 2 screen/cover, all in a very small 12.2 mm package. The S7's screen can open up 180 degrees, letting you lay it flat to do more touch actions, and the system's cooling system has a fan pulling in cool air while another one releases the hot air (although this tends to make the notebook a bit noisier than you might expect). The system starts at \$1,400 (for a core i5 processor, but you can upgrade to a core i7), and comes with a Bluetooth wireless mouse and two adapters (for connecting to a VGA monitor/projector and wired Ethernet).

► **Kanex Gigabit Adapter (USB 3 to Ethernet):** If you own an ultrabook (or MacBook Pro with Retina display) and are annoyed at the lack of an Ethernet port, be sure to pick up this handy adapter (\$49), which uses a USB 3.0 connector to create an Ethernet connection (handy for conference rooms or hotel rooms that only provide a wired



connection). The device does require a one-time driver install, but after that you're fine.

► **HP EliteBook 2570p:** It's not the fanciest notebook in the shed, but rather a solid notebook aimed at the frequent traveler. This 12.5-inch notebook (starts at \$949) features an aluminum magnesium case that helps it survive the normal "bumps" from a business travel (HP calls it "business rugged"). The choice of an integrated optical drive or additional storage make this notebook pleasing to business users (some need the optical drive, some need the space) who might not find these options on smaller ultraportable notebooks. An optional docking station (\$149) allows for additional USB ports, network connectivity and display adapters, making it useful for the office as well as the road.

► **Wicked Audio Evac headphones:** There are about a billion different headphone companies these days, but I still hold a special place for over-the-ear headphones that are comfortable, yet also travel well. While I prefer earbuds for exercising, for everything else (video editing, game playing, iPad viewing, etc.) I prefer an over-the-head style. This pair from Wicked audio (about \$30 online) fills most of these needs — providing comfort for long stretches, and an easy-to-fold method for packing in a travel bag. The braided cord is also an excellent touch, preventing cord tangles that always seem to occur with my other headphones/earbuds. The only issue

— I'm still getting used to the Army Green style (the company does offer other colors).

Shaw can be reached at kshaw@nww.com. Follow him on Twitter: [@shawkeith](https://twitter.com/shawkeith).



Wicked's headphones were comfortable and easy to travel with.

Analyze this: Wi-Fi nets via smartphone

Ekahau offers most comprehensive set of Wi-Fi site survey features in 3-product test

BY ERIC GEIER

In the early days of Wi-Fi, site surveys were fairly basic and involved running around with a laptop looking at simple signal levels. The next step was map-based tools that provided a good visual of Wi-Fi coverage, but still involved carrying a bulky laptop around.

Today, we have map-based Wi-Fi surveying apps you can run on your Android-powered smartphone or tablet. These allow you to create heat maps of Wi-Fi coverage, and for those vendors that offer a laptop-based surveying product, the data can be exported there for further analysis.

We tested Fluke Networks' AirMagnet AirMapper, Wolf WiFi Pro from Enterprising Apps and Ekahau Mobile Survey.

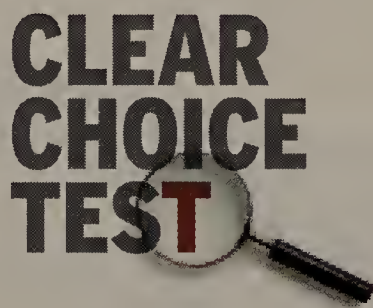
Wolf WiFi Pro, at a mere \$50, is the least expensive but doesn't offer laptop-based software for further analysis.

If you're planning to or already have purchased a laptop-based solution — typically offering more features and functionality than mobile apps — then consider AirMagnet or Ekahau. If throughput is crucial for your network, AirMagnet offers map-based throughput surveying.

Ekahau Mobile Survey is great mobile surveying and testing solution, but it's by far the most expensive out of the three solutions we reviewed. However, it offers better multi-floor support, flexible exporting and importing, and includes a useful network health monitoring and testing feature.

Fluke Networks' AirMagnet AirMapper app

Fluke Networks' AirMagnet AirMapper app offers a Wi-Fi surveying solution for Android devices, supporting the 2.4GHz and 5GHz bands. It's basically a simpler version



of its Windows-based AirMagnet Survey software. A feature-limited demo version is offered free of charge while the Pro version is priced at \$199.

When you open AirMapper for the first time you're greeted with a mini tutorial highlighting the main functions, and then you're taken to the main page where you can create a new project or open an existing one. Right away we noticed the help shortcut in the upper-right corner of the screen, which also appears elsewhere in the app offering a useful explanation of the settings and functions.

When creating a new project you must select an image or take a photo of the floor plan and calibrate it by selecting a given distance on the map and inputting its length. You're limited to inputting a single floor plan so you must create separate projects for multi-floor surveys.

For a project, you can define basic survey details like the surveyor's name, location and description. You can also select the SSID(s) that you want to capture in the testing or leave blank to capture all. Additionally, you can enable or define technical settings like auto sampling, real-time heat map, signal propagation, and minimum signal level of access points you'd like to include. Plus you can define a URL of a downloadable file that can be used when performing throughput testing.

When in survey mode, you simply single-tap along your path on the map to take a signal/throughput reading. You can rotate the

device to better orientate your location on the map. During the survey the current number of access points is shown in the bottom-left, which you can tap on to see a detailed listing.

When testing in the throughput mode, the current throughput rate in Mbps is also displaying on the bottom, which you can tap to see further details.

During the testing you can also tap the annotation icon on the top-left corner to add notes, a photo, audio clip, or video attached to the last data point location.

When you exit the survey mode you see the heat map showing the signal and/or throughput levels. You can tap the "locate AP" icon to show the estimated locations of access points on the map. You can also tap on data points to view a detailed listing of the top five access points detected at that location, and you're able to add annotations. Plus you can tap the filter icon to limit the heat-map results to a certain access point, SSID or channel.

On the top you'll also find an export icon that packages your survey results in a .zip file and lets you send them via email and other methods your device offers. But keep in mind that these results are only importable and viewable in the separate AirMagnet Survey Pro.

Overall the AirMagnet AirMapper app is a great mobile surveying solution, but requires their AirMagnet Survey Pro product to view the exported data. Though the app requires you to create separate projects for multi-floor surveys, they can be imported into AirMagnet Survey Pro for multi-floor viewing.

The biggest differentiator from the other two solutions is that AirMapper supports map-based throughput testing in addition to the traditional signal surveying. AirMagnet also provides superior help and documentation, offering great in-app help shortcuts. The ability to save notes and media clips during surveying is also unique, but unfortunately they aren't included in the exported data. Another snag about AirMapper is that you can only view current access point details when in the surveying mode.

Wolf WiFi Pro

Wolf WiFi Pro from Enterprising Apps is a wireless toolkit for Android that provides Wi-Fi surveying and scanning tools, supporting the 2.4GHz and 5GHz bands.

When you open Wolf WiFi Pro, you're greeted by a simple home screen with shortcuts for each of the tools: WiFi Scan, Channel Scan, Site Survey, and WiFi Manager. You'll also find a button to enable/disable the device's Wi-Fi and Wake Lock button to

NETRESULTS

Product	AirMagnet AirMapper	Wolf WiFi Pro	Mobile Survey
Company	Fluke Networks	Enterprising Apps	Ekahau
Price	\$199	\$50	\$399
Pros	Map-based throughput surveying	Inexpensive	Multi-floor support, flexible exporting/importing, useful network health monitoring and testing
Cons	Requires AirMagnet Survey Pro to view exported data	Doesn't offer laptop-based software	Expensive

control the device's sleep and dim settings.

When you open WiFi Scan, you'll see a listing of nearby access points with details like their SSID, media access control (MAC) address, signal level in dBm values, and an indication of whether the APs are secured. In the detail view you can see channels, data rates and the security protocols.

In either view you can select an access point to track its signal. The tool provides an enlarged signal reading with a bar indicator and the dBm value. Plus you can enable the tone feature that plays a tone that gets higher as the signal level increases to help you find the access point.

When you open the Channel Scan tool you'll see a graph showing channel usage and AP signals in dBm values. You can also tap a channel number to view the details of APs on that particular channel.

Tapping the WiFi Manager shortcut on the home screen brings up the native Android Wi-Fi settings, where you can see and manage the Wi-Fi networks you can connect to.

When you open the Site Survey tool you're greeted with a simple screen where you can create or open site survey projects. When creating a project, all you're prompted to do is select a floor plan image. Wolf WiFi doesn't yet offer multi-floor support, so you'd have to create separate projects for each floor of a building.

To begin surveying, you can walk around the building and double-tap your location on the map to take signal readings. During or after surveying you can long-press on a reading to see the captured network and signal info.

In the upper-right of the app you'll find several shortcuts. The first shortcut shows you're in the survey mode where you can double-tap to take readings. The second shortcut brings up a gallery of various network-related icons you can place on the map to represent items like access points, antennas, routers and workstations. Once you place items you can manually input network details and you can manage them by clicking the third shortcut to open the Network Device Explorer.

The fourth shortcut brings up the Filtering Options. There you can filter what access points or signals are shown on the map via their MAC address, dBm signal level or channels. You can also enable/disable items on the map: signal heat map, access point edge, tap points, survey path, speed and security status.

The fifth shortcut brings up the undo options to remove the last signal or icon tap. The sixth shortcut pops up the survey preferences to change settings, like showing icon tag info and the size of icons and taps. And the

last icon provides shortcuts to the other tools: WiFi Scan, Channel Scan and WiFi Manager.

You can export the survey results via the menu options when in the Site Survey tool, which simply lets you save the results to your device. Then you can use email or another app to send them or plug your device into a PC to transfer them. You'll find an image of the survey map as it was in the app, but with a color-coded signal level bar added.

Plus you'll find a text file containing the details of the survey readings, which you can open in the .csv format within Excel for better viewing. You'll find all the access point and connection details, such as the SSID, signal level, channel, and MAC address of the access point you were connected at the time of each survey reading.

Overall, Wolf WiFi Pro is a great and inexpensive mobile surveying app that provides other tools as well, like Channel Scan, to visually see channel usage and any overlapping issues. Another differentiator from the other two solutions is the exporting. Although still basic, it exports both the heat map and access point details in formats anyone can view.

Wolf WiFi's network icon and network device explorer features are great ideas, but manually inputting all the network details isn't ideal. The UI could use improvements as well. Fortunately, the developer says some of these issues will be addressed in Version 2.0, along with other new and improved features.

Ekahau Mobile Survey

Ekahau Mobile Survey is an Android app that provides Wi-Fi testing and surveying tools for \$399 when purchased separately.

When you open the app, you're greeted by the Test screen, which contains a network health monitor. It monitors the access point signal level, data rate, packet loss, packet delay and rogue signals. It alerts you if any exceed your desired levels. These levels can be manually defined or you can choose between predefined requirement profiles.

You can tap the bottom to display the network details of your current connection with Wi-Fi and IP details. You can also enable Background Monitoring so any network health alerts are saved in the logs.

On the Map screen is where you perform the surveying. After importing a floor plan

image you can calibrate the map by selecting something on the map and inputting its length in meters. Then you can enter the survey mode via the menu options and long-press on your location to take readings. Once you're done you can hit pause to see the heat map of signal levels. You can adjust the threshold of signal levels shown on the map. You can also

select certain access points to see individual coverage and access point details.

You can add additional floor plan images and conveniently switch between them on the Map screen. In the menu options you can export each individual floor map image, which saves the images to the device and allows you to email or export via other methods.

On the access points screen, you'll find a listing of current access point details, including SSID, MAC address,

channel, security status and signal level.

On the Log screen, you'll find a history of any network errors detected by the network health monitor, such as access points with low signal or data rate, rogue access points or high packet delays. You can tap an entry to review the details and even add your own notes.

In the app's menu options, you can export the heat map image and monitoring logs via email or other methods. Plus, survey projects created with Ekahau Mobile Survey and their Windows-based Ekahau Site Survey software are compatible. So you can perform surveys with a lightweight mobile device and later export the project to a PC or laptop for in-depth analysis and reporting.

The last screen is the configuration screen, where you can change the requirements for the network health monitor, scanning preferences and other project preferences.

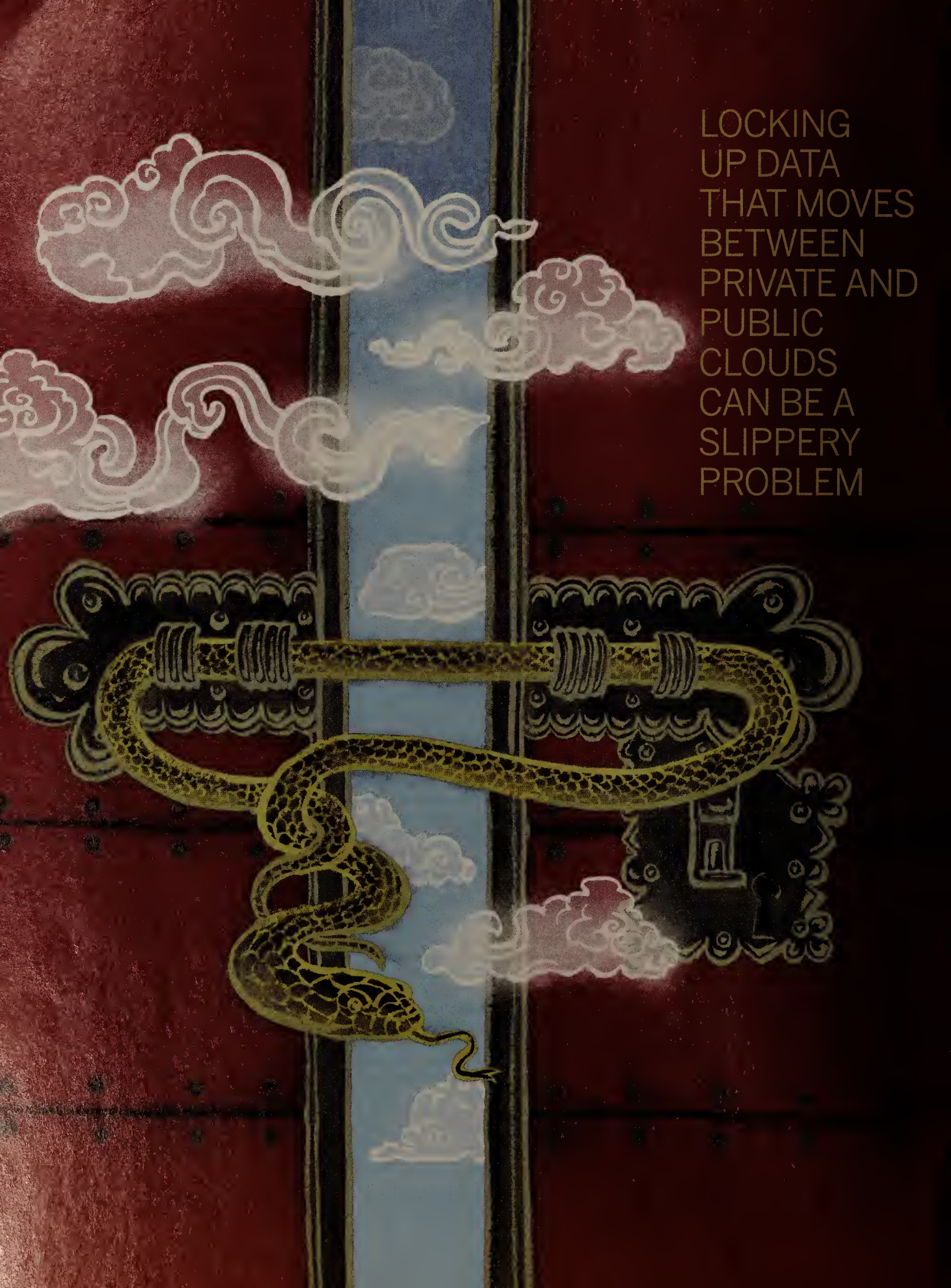
One unique feature of Ekahau Mobile Survey is the widget that you can place on one of your Android home screens. It displays the signal level and data rate of your current Wi-Fi connection and also lets you quickly switch the background network health monitoring on and off. ■

Geier is a freelance tech writer — keep up with his writings on his Facebook Fan Page. He's also the founder of NoWiresSecurity, a cloud-based Wi-Fi security service, and On Spot Techs, an on-site computer services company.



Performing signal surveying in Ekahau Mobile Survey.

LOCKING
UP DATA
THAT MOVES
BETWEEN
PRIVATE AND
PUBLIC
CLOUDS
CAN BE A
SLIPPERY
PROBLEM





BY CHRISTINE BURNS

If 2013 is the year enterprises begin implementing their hybrid cloud strategies, as the experts are predicting, then it follows that this will also be the year when hybrid cloud security takes center stage. According to analysts, industry watchers and security practitioners, the bad news is that there is no silver bullet on how to fully accomplish security in a hybrid cloud. That's because there are so many facets to hybrid cloud security: how to secure on-premises data center resources, how to secure applications that burst to the public cloud, how to secure data stored with multiple cloud service providers, how to protect the virtualized underpinnings of your public and private clouds, and finally, how to secure mobile devices that connect to your cloud infrastructure.

"EVERY HYBRID CLOUD IMPLEMENTATION IS UNIQUE and that makes securing them a moving target."

DAVE ASPREY, VICE PRESIDENT, TREND MICRO

If that's not daunting enough, another reason why there isn't a one-size-fits-all solution is that the definition of hybrid cloud is open to interpretation.

And every company has a different comfort level when it comes to security in general and cloud security in particular. One company's game plan for keeping a minimum set of operations under lock and key inside the on-premises data center or a virtual private cloud, while pushing batch processing or user front-end processes to the public cloud, might be another IT department's worst nightmare.

"Every hybrid cloud implementation is unique and that makes securing them a moving target," says Dave Asprey, vice president of cloud security at security management vendor Trend Micro. Asprey subscribes to the notion of ambient clouds, essentially the idea that enterprise customers are going to move toward a distributed cloud model where they employ multiple cloud providers — each replaceable based on use case, price and availability.

"I don't necessarily think the types of threats against the ambient cloud is up from those used against traditional data center or private cloud schemes, but the potential risks against the data running across the distributed cloud certainly is," Asprey says.

Security strategies that work

The good news is that enterprises already employing defense-in-depth practices across their existing networks can apply those same tenets within a hybrid cloud security management strategy.

The caveat here, though, is that IT management must commit to a whole lot of advanced planning and prepare their staffs for a bit of technological tweaking of security policies and gear before a hybrid cloud goes live (see "Cloud security tips and tricks," page 26).

"Typically in this industry the adoption of any technology happens well before security considerations surrounding it are fully addressed," says Gary Loveland, a principal in PricewaterhouseCoopers' advisory practice and head of the firm's global security practice.

With hybrid cloud, Loveland says, clients are being clearer about the security requirements upfront and are forcing cloud service providers to be more prepared to have solid

answers on topics ranging from defining and ensuring multi-tenant boundaries, to PCI and FISMA compliance and auditing capabilities.

Industry guidelines can help

The Cloud Security Alliance in 2011 established the CSA Security, Trust & Assurance Registry, a free, publicly accessible registry that documents the security controls provided by various cloud service providers. The registry, which vendors supply the information for about their own products, is designed to help users assess the security of cloud providers they currently use or are considering contracting with in the future. To date, the registry contains information about 20 providers.

The underlying problem, Loveland says, is that enterprises have to mature enough in their use of virtual technology and cloud services management to take advantage of the higher security offerings.

Jeff Spivey, international vice president of ISACA, an association of IS professionals dedicated to the audit, control and security of information systems, and vice president of mobile security vendor RiskIQ, concurs. He sees all too often that enterprise IT assumes that once they hand off their operations to a cloud provider, the latter then assumes sole responsibility for security.

"Not true, it's at that point that IT needs to become even more diligent about implementing sound security across their clouds," Spivey says.

He points to COBIT 5, the newest version of ISACA's framework for governance and management of enterprise IT which outlines IT control objectives for cloud computing in general, as a strong guideline for how to implement hybrid security.

As hype surrounding cloud computing continues to grow, IT departments are being pressured by management to seize some of the cloud's promised economical benefits. But it's IT's job to make sure they are not risking the farm in order to go into the cloud to see those benefits.

In fact, computer scientists at the University of Texas at Dallas have devised an algorithm that can help companies develop a risk-aware hybrid cloud strategy.

According to one of the researchers, Murat

Kantarcioglu, the scheme is an efficient and secure mechanism to partition computations across public and private machines in a hybrid cloud setting.

Kantarcioglu and his colleagues have set up a framework for distributing data and processing in a hybrid cloud that meets the conflicting goals of performance, sensitive data disclosure risk and resource allocation costs getting weighed and balanced.

The technology is implemented as an add-on tool for a Hadoop- and Hive-based cloud computing infrastructure, and the team's experiments demonstrate that using it can lead to a major performance gain by exploiting hybrid cloud components without violating any predetermined public cloud usage constraints.

Having to think about how hybrid cloud operations fit into a company's overall information security management scheme could help IT departments reset the appropriate level of security for the processes across the entire enterprise, argues Pat O'Day, CTO at Bluelock, a VMware-based cloud service provider in Minneapolis.

"We now get to think about how to set the right level of security on an application-specific, a process-specific or even a data-specific basis," says O'Day, a condition that gives enterprises a lot of leeway in terms of where they want to spend resources on security.

Rand Wacker, vice president of products for CloudPassage, a cloud server security vendor, suggests customers take the strictest security scenario — most likely pertaining to hybrid cloud usage because there are direct links between the public cloud and on-premises resources — and set the most stringent security policy for that level of risk.

ISACA's Spivey advises clients that whatever security policy they establish, they must be sure that it is portable. "Don't lock your policy to your cloud provider," Spivey says. There will be a time down the road where you will want to migrate away from them for either price or performance reasons and you don't want to have to rethink your whole security policy to make the switch, he says. ■

Burns is a freelance writer. She can be reached at cburns1227@gmail.com.

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CLOUD SECURITY TIPS & TRICKS

BY CHRISTINE BURNS

USERS AND security consultants familiar with the process of securing hybrid clouds have one steady piece of advice to offer: The only way to go is one step at a time.

"Managing hybrid security is a matter of setting policy across all of the security touch points IT is already used to managing. It's about being consistently diligent at every turn," says Joe Coyle, CTO of IT consultancy giant Capgemini North America.

Coyle advises clients to regard their hybrid cloud usage as an extension of their network perimeter. "You have to tweak firewall policy, watch IDS traffic more carefully, employ encryption, set up multiple levels of authentication for management access and demand high levels of physical security at providers' sites," Coyle says.

In terms of securing the link between your data center — virtualized as a private cloud or not — you can go with a direct route or establish a tunnel. Garret Leap, CTO at Direct Insite, a company that delivers on-demand accounts payable and accounts receivable solutions to more than 100,000 corporations across 100 countries, says his company went for a 100MB direct fiber connection for both the increased security it offers and the fact that one of the company's data centers was already collocated at Terremark's Miami facility.

Direct Insite now hosts its customer-facing front end in the cloud and all of the client data is hosted and processed in the company's collocated data center. Leap says knowing that Terremark's virtualized data centers were already rated as Tier 4 meant there was a very high comfort level in terms of who has physical access to the servers there.

To secure the direct link, Direct Insite uses a Cisco ASA box. "We only let what we want to come in and we don't let any data out that should not be allowed out," Leap says.

On top of the physical layer security defined by locked server cages and things of that nature, security consultant Joel Snyder of Opus One in Tucson, Ariz., says it's also crucial for customers to understand the provider's access control mechanism for management of those servers.



"YOU WANT TO PUSH TO MAKE SURE YOUR SECURITY POLICY TRAVELS WITH YOUR VIRTUAL IMAGE no matter where it is running."

RAND WACKER, VICE PRESIDENT OF PRODUCTS, CLOUDPASSAGE

"These carriers have all the tools to make sure the ankle-biters out on the Internet keep away from your data, but have they guarded against having one of their guys being bribed by your competitor to pull down all of your sales data?" asks Snyder.

Snyder says companies looking to build hybrid clouds should demand from their service providers proof of two-factor authentication for all server management purposes.

And they should be demanding that all of the security parameters of the hybrid deployment should be manageable from the same pane of glass, says Kevin Jackson, vice president and general manager of NJVC, an IT consultancy catering to highly secure government clients. Jackson contends that unified management is going to be even more necessary as customers evolve to use multiple cloud service providers in the future. He suggests that customers look to cloud service brokerages to provide those management links.

Every practitioner interviewed for this story said that employing encryption in a hybrid cloud is a no-brainer decision both for

data at rest and for data in motion. But one of the major issues with encryption in a hybrid situation is where to hold the key, as data and access to data can be spread across both places and routine security practice dictates that you don't store the keys where the data resides.

Segal McCambridge, a Chicago-based law firm, opted to go with maintaining its own keys and storing the data for its hybrid applications on Nasuni's cloud-based storage offering.

The firm's CTO, Matt Donehoo, explains that all of his firm's litigation files stored electronically must be managed in a way that guarantees absolute defensibility in a court of law — anything else would render it inadmissible. By design, the Nasuni storage controller installed at Segal McCambridge's site fully encrypts any data or metadata that leaves a customer's office and keeps that data encrypted both on the wire and at rest in the Nasuni cloud.

The customer controls the keys to the encrypted data, by design. From there it's up to the enterprise to pick whether to employ a key management product on-premises or use a third-party key management service.

The two depths of security that come into play for virtualized networks — whether private or public and private — address virtual machine security.

"Sometimes the enterprise security team doesn't have a say in how virtual machines get spun up within a provider's cloud. But they should, because that is a fundamental point of security in the cloud. You want to push to make sure your security policy travels with your virtual image no matter where it is running," says Rand Wacker, vice president of products for CloudPassage, a cloud server security vendor.

NJVC's Jackson says Intel's Trusted Execution Technology (TXT) could help IT departments in the near future with the basic issue of being able to trust the servers running your applications in the cloud. TXT is a hardware-based security measure built into all Intel Xeon servers, which is designed to detect and prevent BIOS attacks and evolving forms of stealthy malware, such as rootkits.

The main benefit, Jackson says, is an understanding that your virtual instances will be spinning up on a trusted machine. ■

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12 HYBRID SECURITY PRODUCTS TO WATCH

Securing a hybrid cloud is not the same thing as deploying hybrid security products

BY CHRISTINE BURNS

SECURING A hybrid cloud describes the process by which IT employs a host of products to manage the security parameters of your hybrid cloud installation. Hybrid cloud security products can be delivered in a box that gets deployed on-premises at a customer's site. But increasingly security vendors are offering a hybrid approach to their product portfolios whereby customers can buy a physical box or buy the security capability as a service.

The traditional delivery model still far outweighs the cloud-based one. In fact, Gartner estimates that in 2011, only 13% of all security products sold were purchased via a security-as-a-service (SECaaS) model. That said, Gartner adds that preliminary sales data shows that for in 2012 that number was closer to 35%.

IDC says the SECaaS market should hit a value of \$3.3 billion this year and continue to rise to more than \$5 billion by 2016.

IDC analyst Phil Hochmuth says there is generally not a big difference between the functionality of a product offered as a service and its on-premises counterpart. "It's more of a function of giving customers more latitude in terms of where and how they can deploy these products in different parts of the enterprise," he says.

Vendors are also quick to point out that given the common root functionality of both deliverables, being able to manage both products from a common interface is key.

Industry analysts, security practitioners and customers interviewed for this package of stories supplied four areas of security (secure Web gateways, virtualization security, security information and event management [SIEM], and identity and access governance [IAG]) in which they are looking to deploy security products in their hybrid cloud in the future, regardless of whether they run them on-premises or in the cloud or a little bit of both. And they have named names in terms of which vendors they are watching most closely in each category.

SECURE WEB GATEWAYS

These products filter malware from user-initiated Web traffic through URL filtering, malicious code detection, Web-application controls and data loss prevention. Gartner contends that 87% of the products in this market were sold in on-premises bundles in 2011, with the remaining sold as a service. Gartner estimates the SaaS segment rose to 35% last year.

1.

Cisco

PRODUCTS: IronPort S-Series appliances and ScanSafe service

WHY WE ARE WATCHING:

Cisco bought IronPort in 2007 and ScanSafe in 2009 and has been steadily building links between the appliance and the service across its networking and security gear so that both are easier to implement in Cisco-focuses enterprises.

2.

Blue Coat

PRODUCT: ProxySG and Blue Coat Cloud Service

WHY WE ARE WATCHING:

The on-premises ProxySG product is well-tested in large enterprise environments for scalability and performance and the list of protocols, authentication options, back-end databases and antivirus platforms it supports are long across the board. The service option is based on the ProxySG boxes.

3.

WebSense

PRODUCTS: WebSecurity Gateway and WebSecurity Gateway Anywhere

WHY WE ARE WATCHING:

The company has a focus on data leak prevention as its main



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differentiator, and it's got an acclaimed Triton management console that helps enterprises manage both appliances and the service (which has the same name as the appliance with the addition of "Anywhere") from the same pane of glass, should they want to run with a hybrid security strategy.

4. Zscaler

PRODUCTS: Zscaler Web Security

WHY WE ARE WATCHING:

Zscaler is a fast growing startup that offers its product only as a service. Gartner has said this is the fastest growing company in this market segment driven by its very strong reporting capabilities, client redirection functions, granular security controls, and flexible, policy-based controls for social media applications.



VIRTUALIZATION SECURITY

This segment of cloud security both homes in on locking down the hypervisor that enables virtualization in the first place and seeks to thwart ill-intentioned communications between the virtual machines running on it.

5. Bromium

PRODUCT: vSentry

WHY WE ARE WATCHING:

Led by a team of security and virtualization experts who had worked at Citrix, Bromium developed an approach to desktop security that virtualizes

end-user activities when they pose a threat of bringing in outside agents or malware. VSentry is built on a "microvisor," a security-focused hypervisor that automatically, instantly and invisibly hardware-isolates each vulnerable Windows task in a micro-VM that cannot modify Windows or gain access to enterprise data or network infrastructure.

6. Catbird

PRODUCT: vSecurity

WHY WE ARE WATCHING:

The recently released vSecurity 5.0 product provides access control, intrusion detection, secure auditing, automated protection, visibility and efficiency for all virtualized machines because it taps into the hypervisor. It can enforce FISMA, NIST and HIPAA standards so that users can virtualize more assets, more quickly.

SIEM

The problems of keeping up with the gobs of data generated by security-focused equipment under your control only gets compounded when you bring a public cloud service into the enterprise mix. The leaders in this space — as determined by the 2012 Gartner Magic Quadrant — are all the big traditional network and security management guys (HP, IBM and McAfee) who all purchased niche players (ArcSight, Q1 Labs and NitroSecurity, respectively).

7. HP

PRODUCT: ArcSight

WHY WE ARE WATCHING:

HP placed ArcSight (which always seems to score well in public, competitive tests of SIEM products) in the Enterprise Security Product group, sharing office space with HP TippingPoint (an IPS) and HP

Fortify, and has been working to build close reporting ties between those products to make them collectively easier to use in large companies.

8.

Q1 Labs, an IBM company

PRODUCT: QRadar

WHY WE ARE WATCHING:

IBM bought Q1 Labs in 2011 and threw it into a newly formed security systems division, which kind of marked the end of IBM's own Tivoli SIEM. IBM has since added indexing and query improvements to support keyword search; improvements in event storage scalability; integration with IBM DAM and support for endpoint management; IPS firewall; and governance, risk and compliance technologies. IBM has announced a co-managed service option for QRadar for customers that want to combine an SIEM technology deployment with monitoring services from IBM.

9.

McAfee

PRODUCT: McAfee Enterprise Security Manager

WHY WE ARE WATCHING:

NitroSecurity was known for its advanced correlation engine, which augments rule-based correlation with risk-based activity profiling. This product also gets really good performance grades in larger deployments. Late last year, McAfee rolled out a new version that allows it to pull in data from McAfee Global Threat Intelligence, risk data from McAfee Risk Advisor, and asset data from McAfee Vulnerability Manager and McAfee ePolicy Orchestrator.

IAG

Identity and access governance is the fastest growing segment of the identity management market. Sales in 2011 came in around \$300 million. Analysts have not published the 2012 sales

numbers yet, but they are expecting 35% to 40% growth. Specifically, IAG is the class of products that request, approve, certify and audit access to applications, data and other IT services.

10.

Aveksa

PRODUCT: Access Governance Software Suite

WHY WE ARE WATCHING:

When the company reported its 2012 financials in January, it announced that 45% of its revenue was coming from brand-new customers. In December, Aveksa launched Identity and Access Management 6.0, designed specifically to help enterprises fully scale their IAM initiatives and manage the big data that is now typically associated with IAM deployments. Shortly thereafter, Aveksa introduced My AccessLive, a new software-as-a-service (SaaS) identity and access management solution which provides integrated visibility and control of both cloud and on-premises applications in a single cloud-based solution.

11.

Courion

PRODUCT: Access Assurance Suite and CourionLive

WHY WE ARE WATCHING:

The unique aspect of this product is that it was designed using a structured process so that it can integrate with other vendors' administration, analytics, workflow and reporting tools.

12.

SailPoint

PRODUCT: IdentityIQ **WHY WE ARE WATCHING:**

SailPoint is a fast-growing firm that takes a risk-based approach to identity management. IdentityIQ combines ID information and log data in the same repository for report intelligence. ■

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Six tips for the care and training of new users

CONGRATULATIONS! YOU'VE just got a new user!

As a responsible IT organization you have to recognize that this is a big responsibility. Your user is probably nervous in his new surroundings and doesn't know how to behave.

Whatever Human Resources has told him can't possibly prepare him for what he needs to know in your digital environment and he's probably already developed bad habits from wherever he was before. Your job is to make sure he's going to become a happy, productive worker who won't complain and ask dumb questions and make dumb mistake that will aggravate you.

To help you train your new user I have six tips that will ensure he stays out of your hair, knows his place, and doesn't waste your time.

1. Listen to your new user. If your new user doesn't understand the computing environment you have for him, don't get exasperated and angry. Give him a training course or, better yet, get another of your users to train and mentor him. The sooner he feels connected to the pack — the rest of the users — the better (and the less of a problem) he'll be.

2. Be generous with your support ... at least in the beginning. You don't want him to develop an "us against them" attitude because, if he's in any way an "alpha" user (say, a senior manager or vice president), he could well start to turn the rest of the pack against you.

3. Be flexible. Just because your other users grok the applications you've sanctioned doesn't mean the new boy will. Maybe he's not comfortable with Microsoft Word 10 (and who really is?). Maybe he was trained on Word 2003 and has never dealt with anything else. Be understanding; a new software diet might upset his system. Introduce

new software carefully.

4. Show him what you're willing to do rather than doing what he wants you to do. While there's nothing wrong with saying "no" you never want to actually say it. You'll just get him worked up and resistive. Persuade him with arguments like, "but that's what the CEO wants." He'll soon get with the program.

5. Be consistent. Make sure all of your support staff know how far to go in supporting him. If one tech says "yes" while another says "no" the mixed messages will confuse him.

6. Be realistic about his adaptation to a new environment. Introducing your new user to his new corporate family takes time and patience. Before you make his life hell for not getting with the program, give him that extra care and attention. If that doesn't work, then harsh discipline may be necessary. The first time his files disappear and IT shows him how it was his fault, he'll get the message.

Yes, getting a new user is fun and a challenge, but whether he'll wind up being a good user who is with the program and part of the pack depends on you and your mastery of the principles of user training.

Get your new user's training wrong and your time will be eaten up with demands and complaints and the rest of the pack may become fractious and unruly. But get him in the program from square one and everyone will be happy and productive.

Good luck. ■

Gibbs is pack master in Ventura, Calif. Training strategies at backspin@gibbs.com and follow him on Twitter and App.net (@quistuipter) and on Facebook (quistuipter).



Falling for a phony iPhone cup holder

AN IPHONE case that doubles as a cup holder? Looks positively ... well, ludicrous, doesn't it? Yet that detail didn't dissuade a

fair number of journalists from covering the contraption's funding appeal on Indiegogo in an entirely too serious manner.

First a *Los Angeles Times* reporter wrote a straightforward account of the gadget, called UpperCup, but left himself an escape hatch in the eighth paragraph of an eight-paragraph piece: "It's not clear if this is a publicity stunt for [Dutch marketing firm] Natwerk or if it is a legitimate business idea. The company is, after all, a marketing firm."

Yes, it wasn't bet-your-bottom-dollar clear, but it was pretty darn obvious. And asking Natwerk the question was an option, too, which we'll get to in a moment.

Next the UPI news service took the *Times* piece and rewrote it — without including the "publicity stunt" possibility; in fact, without a hint of skepticism.

Cult of Mac did what blogs (including mine) do routinely these days: passed along the oddball item. Cult of Mac at least cautioned that the concept might make you "scratch your head."

On BuzzFeed, the headline read: "This iPhone Accessory Will Make You Hate Yourself For Wanting It."

A WebProNews writer picked up the BuzzFeed item and opined: "This is admittedly a little ridiculous. But I can totally see it selling."

And so on and so forth.

While this was going on, I had mocked UpperCup as a publicity stunt on Buzzblog, and sent the alleged would-be makers three questions: "Is this a joke?" "Is this a publicity stunt?" And, "Are you telling

me the truth?" When I hadn't heard back in a few days, I sent the email again, this time getting a reply from a Natwerk spokeswoman. Here's how that went:

Is this a joke?

"Yes, pretty much. For instance, the fact that we've made the whole thing about 3 times as thick as necessary we hoped would give away we weren't all that serious. Nevertheless, we really think it is a cool device and we would really want to have it produced so we can walk around and be cool with it attached to our iPhones."

That desire to have it produced is also a joke, since the Indiegogo crowd — apparently more skeptical than a bunch of bloggers — has pledged only \$900 of the \$25,000 Natwerk said it needed.

Is this a publicity stunt?

"It actually isn't a publicity stunt. We didn't expect it to get so much attention. We have a range of products we develop in between jobs. It is a good practice and keeps the creativity flowing in our company."

Allow me to translate: "It actually isn't a publicity stunt" means "It actually is a publicity stunt."

Are you telling me the truth?

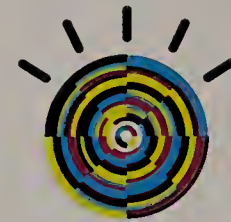
"Yes. Can't be more honest. I think a dumb idea like this wouldn't really make a good promotion for our company."

That depends on how you feel about the old any-publicity-is-good-publicity thing. ■

Have a comment? The address is buzz@nww.com.



FROM LIMITED I.T. RESOURCES TO UNLIMITED POTENTIAL.



FOR MIDSIZE BUSINESSES, A REDEFINING MOMENT.

In the past, midsize organizations with big ideas were constrained by limited IT resources. Not anymore. With the arrival of scalable, affordable cloud computing, sophisticated ideas for new products no longer languish. Personalized customer service generates incremental sales. And new, revenue-rich markets are being created every day.

92%

92% of midsize companies say they will invest in the cloud within the next 36 months.*



Scale Flexibly

REINVENT WITHOUT REINVESTING IN I.T.

LINK wanted a faster, more accurate way to measure consumer sentiment. Working with a powerful facial recognition solution created by IBM Business Partner nViso in the IBM SmartCloud,™ LINK is now capturing respondent reactions to marketing messages in real time, via home webcams. Scores are generated every second for 7 emotions. And LINK gets its results up to 90% faster.



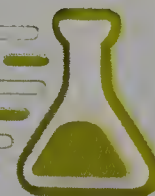
Reduce Fixed Costs

It's shaking up industries and providing new opportunities for new players, with many pioneering midsize businesses once again leading the way. Consider: 92% of midsize companies say they will pilot or adopt a cloud solution within the next 36 months.

Progressive companies like LINK Institute, the Swiss consumer research firm with 110 employees, are doing it right now.



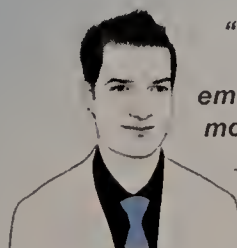
Speed Innovations to Market



What can the cloud do for your midsize business?



Extend Collaboration



"We can assess a consumer's emotive response more accurately."

— Tim Llewellynn,
nViso CEO

In the past, a data-rich solution like LINK's would have been impractical for a midsize company. But in the cloud, traditional research is history. And a new service has transformed a business.

Get started by learning how IBM and its Business Partners are helping midsize businesses reinvent themselves at ibm.com/engines/cloud

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[POWERFUL ANSWERS]

Brains matter. Particularly when you're dealing with robots and algorithms. But at Verizon's Innovation Centers, you'll see another constant. Passion. Smart people working overtime. Running on fumes. Because they know what technology can solve. They know it can help doctors make a more informed diagnosis in seconds instead of months. They know if we think long and hard enough, we can help insure a constant supply of clean energy. Or help a firefighter see through a blaze. The hours are long. But great. Because we believe the world's biggest challenges, deserve even bigger solutions.

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